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Vol. 3

Birds of California
Species Accounts
Lophortyx (part)
1930 - 1936

E L Sumner Jr.

INDEX TO FIELD NOTES ON QUAIL

BY E.LOWELL SUMNER,JR.

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Lophortyx californicus californicus

2/16/30. Marysville Buttes, Sutter Co. Calif.
At west end of Buttes on north, shady, well watered exposure, low down. Flock of about 25 seen.

6/28/30. Berkeley at end of Euclid Ave. Berkeley, Calif.
Female with flock of young about 1/4 grown seen to run across the road.

8/21/30 Jamul Ranch, experimental tract, S. Diego Co Calif
(See map made at the time).

6:15 A.M. Flocks of adults and practically full grown young seen descending slopes to Jamul Creek at all points. (Sun rose about 4:45).

From 6:15 until 8:30, when the census was completed, seems to be the optimum time for observing quail. Although I combed the lonely hillsides on both sides of the valley (see map) very carefully not a single quail was heard or seen. They were all down on the flats, or at the bases of the slopes, by the creek, which contained water. Total of 250 birds in 7 flocks counted (see map.).

9/9-10/30. Vicinity of Sweeney Ranch, 22 mi. S. Los Banos, Calif. Small flocks by the various springs. Came down to drink in early morning. (6-7 A.M.).

Lophortyx c. californica

11/16/30 Cedarville to Ft. Bidwell, Modoc Co, Calif. — along the road many flocks; 60 at least in one flock feeding close to road. Snow as coming down, and lay about 3" deep; birds feeding in cornfields; tame. Residents say they were introduced several years ago and have greatly multiplied.

3/16/31 Sweeney's Ranch, 20 mi S. Los Banos, (in dry foot hills). Several flocks flushed from small water course in the upper end of the canyon. Some at least were running about on paths —

8/22/31 — Ranch of Jack Oakell, Gordon Valley, Napa Co. Calif. (see record of about 200 banded birds purchased from Sealpoint). Birds released at a point on a dry, partly open partly brushy hillside at a point where we rigged up an artificial (chicken) water fountain (inverted type). The birds were timid (?) about leaving their close (and very hot!) box when it was set down under the bushes. Even those which were directly in front of the open door craned their necks and quit-quitted for several minutes before venturing out into the new and

thoroughly strange environment — it must be remembered that all of these quail were birds of the year artificially raised in a small back yard, and quite unused by experience to open unobstructed spaces. They were all very hot and panted rapidly, but although the water was about 3 ft from the opening of the box only one quail — which happened to walk over to it by accident — discovered it. Thereat (49), although very thirsty, did not recognize the water as such in its new shape (poultry water fountain), neither did they seem to be able to profit by the example of the one. Admittedly, though, they were in a confusing situation and might not have had time to observe the drinking bird — at last they did stay close beneath the low branches of the shady bush where they were liberated.

Birds (the remainder, lot 2) liberated at the spring: These birds behaved similarly to lot

Lophortyx

one. They were liberated by a cattle trough (muddy plan) in a narrow draw grown up with oaks and bog trees. These birds also showed hesitation at leaving the box, and those that did leave, in many cases, flew up wand with a whir of wings and then fluttered here and there aimlessly just beneath the lower branches of the trees, without alighting - usually they moved up or the ground one more - often out in the sun, or up on the dry hillside. About half the birds left in a more leisurely manner and walked up the muddy draw and presently began to drink, so that in about an hour the majority were found about 50 feet up the draw from where liberated, drinking and resting; probably the stragglers were drawn down to the plan by the quit-quitting of those already there.

About 23 birds died from over heating. Most of these were dead when the box was open, but

Lophortyx

three or four were not quite dead when released; these squatted down with drooping heads and closed eyes, panting feebly, and sank from bad to worse. Once when I picked up a bird in order to get water into its bill the extra strain upon its weakened constitution (+ fright?) seemed to be too much for in each case the bird straightened its head and flat out rigidly and with convulsive flappings of the wings passed out. Quail, they say, nearly always die with such convulsive flappings, no matter what the cause of their death.

Canyon (draw) with spring in it – only further up about 100 yds. A large and rather scattered group of (resident) quail searched out of the shady oaks and bay trees as we went past. There is no water up there but there is shade and it seems that quail commonly spend the hot afternoons, and have roosts in such cool places. It was very hot, the time of day being 2–5 while we were there.

See banding note book 161 et seq. for band numbers record of molt, etc. (A total of 23 birds died in all, mostly

from lot 2 (20) which was made up of 50 large healthy birds and not much from lot 3 (3 birds), although this lot contained 75 small relatively very immature birds. Evidently it was the ventilation factor which counted, lot 2 box having fewer air holes, and not size. Lot 1 (of 50 birds) although of same age as lot 2, did not suffer any casualties.

8/28/31 Okell Ranch, Gordon Valley, Napa Co.

Station 1 (on dry hill side) Teddy Okell & his father say that on 8/26/31 they filled the drinking fountain full, having found it about half empty at that time. They did not see any quail at the time, but in view of our experience to day I have no doubt they were there. We visited the place and found a lot of the grain scattered there still unwaten and apparently no quail. After walking all about there, and on the point of leaving, I went around to one side of the brush where I had not been before when suddenly I heard a series of quit quits and upon looking in under the thick brush four feet away from my feet discovered 20 - 30 of the birds.

A few moved about nervously, quit quitting, but most of them stood nearly motionless watching me, and when I came closer merely edged off into the depths of the brush. Their tameness was due to their being raised in a back yard; wild birds would have flushed at many times that distance. The water in the fountain trough was a little muddy due to the grial getting their beaks or feet into it. Evidently the birds were living right where they were planted. All were hards. 30 or 40 were seen, but I did not count them for fear of disturbing.

Lots 2 & 3 (not distinguished). These birds were as silent, and also as tame, as the others, so much so that I passed by them once going carefully and listening for sounds, too, without seeing them. They had moved down the canyon about 150 feet from the trough and were walking about in a little group of 30 or 40 under some low scrubby brush, as manzanita. When I approached they moved off with a few quit quits but seemed not much afraid, and would come out into the open when 15 ft or 20 from me. About 200-300 feet farther down the canyon is a good

spring with lots of open water and perhaps some of them may have been in the very dense brush which grows down there. I did not have time to look at it all. Odell says that last year the quail (quail) allowed down the canyon which he had planted by the trough, and never, apparently, came back so perhaps some of this years plantings have done this also. I did flush one bird by the spring, but it was strong of wing and seemed to be an adult, whereas our birds were clearly distinguished by their bands; all of the birds seen had them.

Same Canyon further up, near 2nd waterfountain where quail were seen in trees last time: no birds were present up there this time and neither the grain nor the water had been touched.

8/29/31 Ralph Ranch. B. McLellan says that a very large flock of quail has been down at the "lake" for the last several

morning, presumably for water. I spend last night there and this morning but see and hear no quail. As a matter of fact this water supply, the "lake" has dried up during the drought spell to a puddle 2½ feet in diam. x ½ inch deep, very muddy, and so alive with hundreds of ini. salamanders that they are actually touching. Probably the quail preferred to move; also it was a cool, cloudy a.m., if that has anything to do with it.

11 A.M. In corn field where corns are. Saw an ad. ♂ perched on a fence in an open dry field and approached to about 75 ft without causing him to fly, although he moved his head about nervously. For about 20 minutes we both sat in our respective positions, motionless. Once or twice I saw the tops of the long grass moving as though other quail might be feeding a few feet from the "sentinel", but never a sound from any of them. Once a bend of corns, with jangling

Wells, approached to within 150 ft. The sentinel turned his head this way and that and "q. qed" but did not leave his post — not even when the cows saw me and stampeded back from where they had come. By and by he stretched his neck, lowering his head at the same time and peering downward just like a chicken which is about to have its roost, and flew down into the grass where the other quail seemed to be. I saw no other "sentinel" come up to take his place but there might have been one, for there were some fence posts on the other side of the trees there which I could not see. After a while I got up and went over to the little clump of oppresses and Cali holly in the open grassy place where the quail were. About 40 quail got up, with little q.q.ings, in 2 detachments, and flew into some tall dense oaks, 75 ft away. I crouched out of sight and waited. Presently the quail, silent a moment before, began to q.q. and more

about restlessly as though anxious to leave. I got the impression that the g.g. ing, which was now quite loud, ~~was~~ served the purpose of keeping the flock together. Pretty soon, with much scattered g.g. ing they flew down out of the tree by 2s and 3s, all on one side, and began running furtively up the canyon, appearing and disappearing momentarily as they went through the thick brush. I only thought to count as the last detachment went by. It was composed of 2 ♂s, a number of ♀s and young nearly grown. Presently, 100 yds up the hillside I heard a clear ca cóu, cuca cóu, but no more g.g.s.

I forgot to mention that the "sentinel" quail had a long dry-grass straw caught in his feathers — it looked as though it passed just under, or over his wing — in such a way that it stuck out behind

. This shows one of the ways in which birds may become carriers of vegetation.

9/3/31 Alpine Creek Ranch. Water tanks by orchard above McLellan's house. Slept there

Lophortyx.

At 5:20 the sun was still 3/4 hr. or so from being up; it was very misty and gray. Two thrashers, a spotted towhee, and later some bushtits called, but at 5:50, when I left there were still no signs of quail (sun just beginning to lighten things up through the mist). Mr. Lillas says the quail don't come down to drink that early.

Salinas, ranch of James Bundgard lettuce razer on a large scale who has suffered extensive damage for the last two years. Says each year the quail come down from the adjoining brushy hills at the same places and eat the leaves of the young lettuce as fast as they show above ground. They come down early in the morning and it is noticeable that they work the same place each day, so that quail-damaged places appear as slowly enlarging spots or bands

Lophortyx

bringing the lettuce fields at intervals. This tendency to return each time to the same place shows the force of habit as it dominates the birds behavior. The lettuce is very succulent, and B. says he thinks that when they eat it they need no water to drink at all. Certain it is that this juicy lettuce, coming at a time when much of the country is dry, is a great attraction to them. B. says that the quail come down from the dry barren hillsides of the adjacent game reserve just as soon as the first crop of lettuce is sown in the spring (it is resown every 3 months). They remain in the vicinity of the lettuce all summer — finding refuge in the thickets of elder berry ~~and~~ willows, wild blackberry tangles, etc., when not actually in the lettuce — and then, with the very first rains, they vanish into the barren hills again and

do not reappear until the following spring - this because according to Bundgard the little seeds, their native food, soften and sprout and become far them more attractive; also the lettuce supply is waning by then, ~~especially since~~ Quail eat lean plants and spend much time in them also, but do not do any appreciable damage. The O's, B. says, living their young into the lettuce fields from the very first. He says the way to attract quail is to raise lettuce! Says also that when they first come into the lettuce they are very tame (until shot at considerable) and would be easy to trap for this reason and also because they keep returning to the same places to feed. This year B. lost several acres of lettuce (he has about 500) and if he had not employed a man for a period of three weeks to do ~~do~~ nothing but walk up and down in the threatened areas shooting

at the birds he would have lost many times this. Lophortyx He says if unchecked one coney will destroy three or four acres in a single week. I saw the damaged areas and they looked like worn places in a carpet they were so bare of lettuce.

9/10/31 Alpine Cr. Ranch. Boat house by lake 5:35 P.M. a quail heard calling cu ca cow about 3 times each on two different occasions, separated by about a 10 minute interval. This was about 100 yds up the hill from the "lake" (where a trickle of artificial water was made, although I have not yet seen it used by the quail). Thrashers, sparrows, and perhaps others were drinking at this hour (light, but not sunlight) and the water is nice and clear but still the quail have not seemed to make use of it — maybe its drying up earlier drove them away for good. Quail, it seems, don't drink very early here. A nice sunny day to day, although misty last night.

* * * * * * * * *

9/15/31 Marysville Buttes, near West Butte, Colusa Co., Calif. About 6:30 A.M. (bright, sunny, clear, cool, slightly windy). Quail heard cu ca cow ing several times from nearby hills. This is pastured by cattle to some extent in here, with water troughs in the bottoms of the cotton-wood lined canyons, and I suspect that the quail were in the vicinity of such places.

* * * * * * * * *

9/19/31 Algerie G.R. Cornfield (upper). 6:15 P.M. (dusk). I had hardly gone 100 ft in my search for a covey of quail to watch going to roost when I stumbled on this one, by the ~~N.E.~~ South edge of the upper corn field; numbering perhaps 20 birds. They were running about just at the edge of the now cleared, but still rather weedy field, and most of them did not see me — those that did (if they did) merely scurrying back into the brush.

I kept still, and listened to the quail, which were skurrying and rustling about in the brush 20 ft. away. Pipilos (the brown) were flying after one another and "screeching", and all things of the day time were going to bed, while a horned

and was calling intermittently. I could hear a little undertone - mo, mo, mo, of the quail from time, inaudible at any distance over about 50 ft. All at once two or three ♀s wandered out into the fringe of brush about 20 ft from me, and saw me - or at least I feel sure they did. At any rate there was an instantaneous explosion of quit-quit-quit quit-quit-s from those particular birds, and they mutted away, still quit-quitting; the other members of the flock made no noise except the mutting. The alarmed ♀s flew up into the tops of some nearby bauhinia bushes and fluttered about in them, quit-quitting, but I kept very still, and presently they subsided, and flew down onto the ground again.

6:25 At this time they began flying up through the thick brush into the over hanging bay trees, which were very dense along there, in the bottom of a small draw. They fluttered and clambered about, making quite a noise, and added to this was their explosive quit-quitting, which broke out sporadically throughout the whole flock as they moved about. The harmed and which had been calling, suddenly

Lophortyx

appeared not far off (75 yds) in the top of an oak, but he seemed not to be paying any attention to the quail - indeed he was looking the other way; he disappeared shortly, I don't know where.

6:34. All the quail have become silent except for an occasional, barely audible mo-no. They are roosting in rather scattered formation, two or three here and 3 or 4 there, judging from the sounds at least, but the whole flock is within a thirty foot circle, I think. The dinner bell clangs and I call out in answer, but this does not provoke a sound from the quail.

635. One or two quail quit-quit for a moment, then all is silent - for good. It is now almost quite dark; the moon is up - a yellow crescent - and the boom of the horned owl comes faintly from out of the distance. I leave, making quite a rustling in the brush - but the quail make no sound.

9/20/31. Same place as last night (I slept there).

~~5/~~ 5:26 A.M. Just getting really light - a

thrasher commences calling. No sound yet from the quail.

5:30 ~~Co~~ Quite light, although sun not yet over the hills. A cooper hawk seen to dart out of the pines, fly low across the corn field, and disappear in the thick trees of a near by canyon. He, or I think it was he, kept up a low calling (incessantly repeated single high pitched note) for quite a while (10 min) but I could not see him. Still no sound from any quail; they are indeed late risers compared with other birds. [Later - ~~no~~ yes!]

5:35 at last - quail heard calling (ca ca cow) from two different places - one about 200 yds up the hill (south:) and the other about 150 yds east in or near the cooper hawk canyon. The birds in the cooper hawk canyon are quit-quitting explosively, and I hear every now and then the flut and rustle of a large winged bird - giving the strong impression that the hawk is moving from tree to tree

and that the quail are alarmed at this; however, I can see nothing.

Now my roosting birds are heard for the first time (5:36) - the subdued mo-mo of last evening; hardly audible.

6:04 My birds can be heard flying down to the ground and moving about. It is now bright sun light.

I am putting on the map the location of this covey, but not that of the other coveys heard.

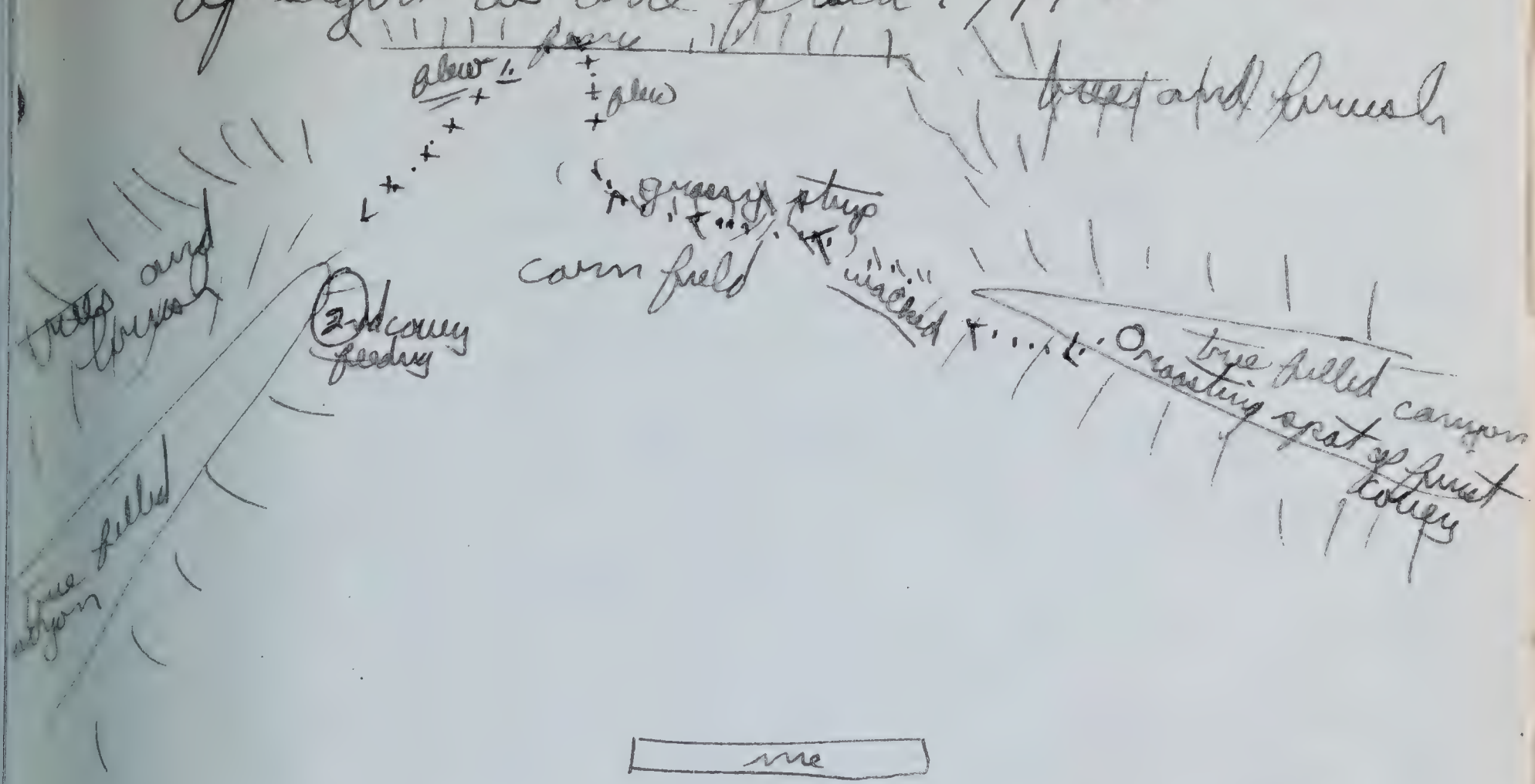
6:15. My birds have come out to the edge of the burned patch - right where they were last night, and begin to feed. They stick pretty closely to the fringe of burned, and one, when a small bird (junco or towhee) darted up from the ground near them into a bush, most of them gave a little startled run toward cover - and this, no other danger appearing, resumed feeding.

Now the birds are working out a little farther from cover - ten feet in some cases, but that is about as far from it as they

will get - Lophortyx There is a grassy, weedy, uncultivated strip running out across the middle of the corn field (denuded of corn-stalks) and they follow this, away from the brush, in straggling files, quit-quitting nervously. At the end of the strip they were still far from cover, and, desiring to cross the field, they at this point jumped into the air with a whirr of wings and flew across the bare ground to the fence line, where the brush was thick again.

Over at the canyon on the east (cooper hawk canyon) I have been hearing an intermittent quit quitting, as well as some lusty cá cawing, for some time, giving notice of another covey. These are now feeding along the brush fringe ~~right~~ near the first mentioned flock. Presently the first-mentioned flock ("mine", which roosted) gets up and flies across the open field again and joins this second covey, and ~~they~~ move off through the grass out

of sight as are flock. 7 A.M.



Shows route of covey in A.M. upon leaving roost, and its joining with the other covey.

While they were feeding I heard a sudden wit-quitting and a whirring wings and saw the birds running back from the field into cover. A red tail was sailing over head, paying no particular attention, and too high up to pounce anyway; shows the characteristic alertness of the quail, though. The hawk perched in the top of a tree for a moment and then flew on.

Later - I have scattered mixed grains (chicken scratch mixture + millet + whole corn + sunflower seed) about in radiating lines in the vicinity

of : (1.) Boat house - "lake" (there is a puddle of water ~~there~~ still, due to my pipe-line and many tracks in the mud, but I think they are of thrashers, song sparrows, etc.; for I have never seen a quail there.

(2) Cattle trough, by corn field. (I had put sloping boards leading up to this trough so that the quail could reach the water, and now I see many bird tracks in the dust about the trough several droppings on the sloping boards, and two quail feathers (downy) in the water).

3. Spring on hillside near steam shovel

4. Spring above orchard, near water tanks

5 - Did not visit the "boggy" lake because the road was barred. -

10/1/31 Alp. Cr. P. see under Accipiter cooperii this date for note on alertness of

a flock of quail, and general behavior, in presence of this hawk. See also under Aphelocoma this date, for negative evidence as to warning given by jays as to presence of the hawk.

10/3/31 Ohell Ranch, Napa Co. Cal. John Campbell (Co. sook) wrote Jack Ohell about 2 miles ago saying that his newly banded quail (see previous pages) had been seen in the following places:

1. Charles Williams orchard
2. Gordon ranch
3. Cannons ranch

(see rough map on ~~next~~ 26 page).

Coming up this P.M. I find out from John that (1) about 45 quail have been regularly spending this winter in the small vineyard at the base of the hills in Chas. W. his orchard — this orchard lying at the ~~foot~~ mouth of the canyon which leads down from the water trough — the same place the Jacks said his other plantings of quail had gone to several years back.

(2) 250 or so birds

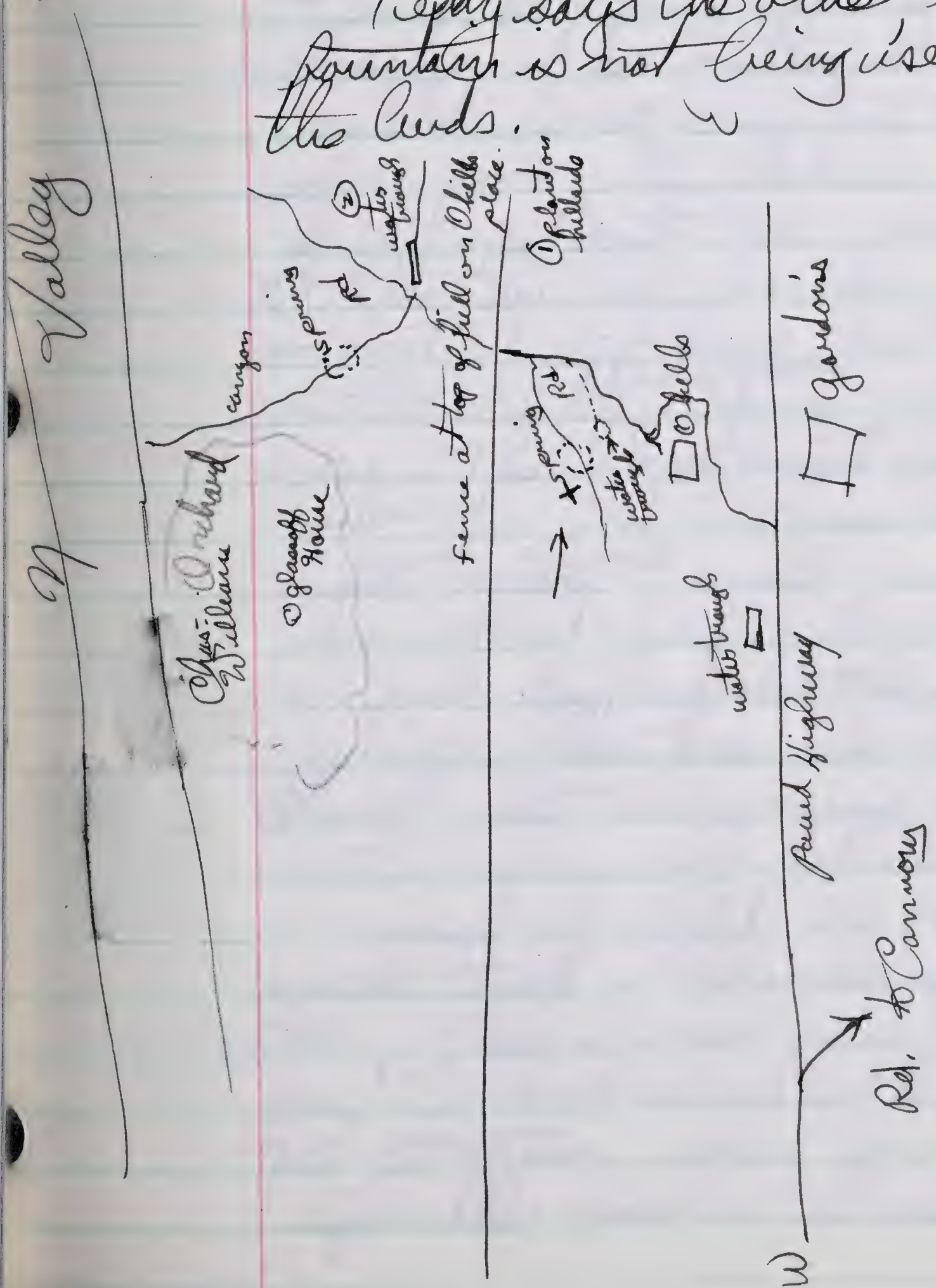
were present also around house of Walter Gordon, who lives just across the road from the Hills, but J. Campbell thinks they have now moved over to the Cannon's place, since banded quail have been reported as being seen over there, around the lawn, regularly during the last few days. Campbell says that in all cases the quail reported have been "very gentle" (= tame) and that banded birds have been actually observed in each case.

(3) Teddy Hill says that down by the water trough, opposite side of the road, highway he saw a flock of about 25 crossing the road the other day; he observed the bands of several of the birds. He says that they have been filling the water fountain on the hillside (xx!) about once a week, and that each time now it is about half empty — less than the very first time, but showing considerable use nevertheless. He says he only

saw about three birds a day or two ago when they left back water there, but John Cantrell says there is quite a flock up there still.

Teddy says the other second, mountain is not being used by the birds.

2 Teddy saw quail by road.
5 Cantrell saw quail in vineyard



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Lophortyx

10/4/31 O'Neill Ranch - by water trough. Slept there, and was awakened at 5:55 by loud calling of a nearby quail. It was graydawn, quite light but not yet sunlight. On going over there I found two quail sitting in the branches of a rather dense, but isolated small bay tree on the open park-like hillside (most of the scattered trees were oaks.) Whether they had been there all night or not I don't know but think it rather likely. (later - unquestionably) Going northwest, down the slope towards the valley where the Chas. Williams orchard is I heard several quail more or less scattered, quit-quitting from several bay and oak trees of dense foliage - these trees also being scattered about with no ground cover beneath, on the open dry hillsides. I found a covey of about 30-40 birds in the tangle of branches of a fallen tree. They were not very wild, and I could sneak up to within 75 ft. of them; some gave the alarm, especially one in a nearby bush,

that stayed motionless, hidden, and quiet-quieted steadily. The remainder of the covey was feeding around the tangle, and around some brush and rocks nearby, and seemingly paid no attention to the warning of the few birds that saw me. Once when one of the birds moved suddenly, with a whirring, they did take heed, and all scurried toward cover, some flying a foot or two, also with whirring wings — but the majority of them stopped before they quite reached cover — apparently seeing nothing to take alarm at, and continued feeding. They picked up things rapidly, and often would give a few little scratches, just like a hen, thereafter where they had scratched several times, then run a few steps, pick some more, and perhaps scratch again. It was all very animated, the birds moving briskly here and there, and twice I saw ~~one~~ ♂s, upon coming up behind other ♂s, during their

feeding, give a little run at them, with lowered head, just like ~~a cock~~ young roosters in a farmyard; one the same ♂ chased another, ♂ twice in succession — just a few steps each time, though. Perhaps 3/5 of the birds had bands — it was difficult to tell exactly — but I think that many did not, including several actual ♂s in fine plumage, which — examined at close range — evidently the introduced birds are mixing with the residents, to some extent, at least. Most of the introduced young that I saw were in full first winter plumage, but I noticed one ♀ in a very undeveloped, transitional stage. Presently more and more birds began to see me, due to some slight movement on my part, and as these, with a few quit-quits, began to move off through the brush, the rest followed their example, at which I turned to go, and in exposing myself, aroused the whole covey,

which rose with a whir, flew 30 - 50 ft, and alighted on the ground once more. It was noticeable that this covey was much less wary than the scattered groups of birds seen just previously which acted more like wild, resident birds. Perhaps the tameness of the introduced young tended to hold the ~~ada~~ wilder resident birds in my vicinity longer than under usual circumstances. The introduced birds were much wilder than upon the last occasion, though.

I went on down the canyon through which water from the trough goes. There were no birds either above the trough (where we put the 2nd drinking fountain) or on down by the second, large spring (see previous notes), in fact I saw no quail all the way down it. It gets wider as it proceeds downward, and more choked with brush, untill finally it opens out into a gravelly (dry) stream bed which is

Lophortyx.

bounded on each side by extensive and dense tangles of grape vine, berry-bearing shrubs (lost my specimen), bayberry, and wild-rose thickets (& hips abundant) — in all a perfect haven for quail. A hundred feet further, on the other side of the fence, was a corn field, and then an extensive area devoted to orchards, with a few small vineyards, the whole, though recently cultivated, with numerous patches of rank weeds here and there. No wonder the quail always drift down the dry, more or less open canyons, in the barren hills, and are found down in here; the wonder is that so many are still up on the hillsides! But then, there are numerous berries (specimen send) at this season, which explains it. I heard many quail calling in this orchard (it is the C. P. orchard) but had no time to see if they had bandoon. I went back up the hillside from the orchard & the top of

the ridge. All was dry, weedless and open + beneath the scattered oaks, and there were no quail. What Jack needs is a tractor and a corn drilling machine.

Covey on dry hillside (No 1). About 4 birds flushed from the clump of brush in which the water fountain is located, and flew (this time) into the tops of an adjacent clump of oaks. As I was climbing up the hill toward them they must have left, for when I got under the tree and there sticks up, there were none there. A few minutes later, though, right near there a ♀ got up, got from me and flew off; she had been sitting in the thin grass on the open hillside, in plain sight (comparatively speaking).

Last night Teddy told me of a spring down the hillside, and across the road, from the dry hillside plant, in a small canyon (see "→ X" on map), and at the time I thought "I'll be down there". Sure enough. I had hardly got in sight of the spring when I heard a chorus of quail (it was then 11:15 A.M.) and

saw a dozen gray forms scrouging up the hillside away from it into the brush. When I stood still (I was 200 ft away) they re commenced feeding around the spring again. They were very much aware of me, even though they gave no apparent sign, as I crawled up behind a rock, for when I hitched my glasses on a branch, making a barely audible sound, they scurried again. While they were still running, not very fast, a ground squirrel suddenly barked, and at that the hindmost doubled their speed and all disappeared into the brush. All that I saw of all distinctly had bands; they have certainly grown wilder since the last time. There were about 25 in all.

Water trough by paved highway. Teddy Odell said he saw bands on several of the quail seen running across the road at this point, but I think he may have been mistaken. I found the quail pure enough, just as soon as I had stepped

out of the car. They were right by the fence which parallels the road, evidently resting (it was 11:30 A.M. and quite warm), but got up, with quit-quits, and scattered here and there into the brush as I got out of the car. By keeping still and standing behind the car so that only my head showed above the top I avoided frightening them entirely away however although they moved about nervously for some time, and showed their alertness by reacting to my every turn as I moved my head here and there watching them through the binoculars. After they had quieted down they acted just like hens, some crouching down and lolling about, some just standing about and others preening over nuttantly.

No ♂s were seen to run at any other ♂s.

Some young were still "patchy", with parts of their im. plumage present.

The whole group certainly does skulk by the water.

Tracing the probable path of

those which had come down through the Gordon Ranch and then into Cannons. I found the canyon leading directly down from the opening where I saw the previous bath of quail (see page 32 et seq.) through O'Neill's farmyard, across the road, and then into an extensive orchard, belonging to Gordon, which Cambell said extended all the way over to Cannons.

10/24/31 Los Trancas Canyon, on way to Alpine Creek Ranch, San Mateo Co. Calif. A few hundred feet before you get to the Alp. Cr. R. gate. A flock of 15-20 birds ran across the road. It is densely wooded and brush over nearly all of this canyon, being dark and damp for this reason, so that the presence of the quail was a surprise. However there is a cluster of houses a few hundred yards down the hill and perhaps they have some land under cultivation which is an attraction to the birds.

10/27/31 On the road to Alp. Cr. Ranch - far down where there is pavement east of the road which turns off to Stanford University - I frequently see 15-20 quail

running across the road and into the weeds and tangled thickets which abound in this place. There are farmyards and dwelling houses thereabouts with weedy fields and orchards, as in the other places where I have seen quail. Elsewhere along this road, where there are open fields and bare hill sides, I have never seen any quail.

10/31/31 Alp. Cr. Ranch. Lay "three cypress trees inside of circular fence", by the corn field 4:45; early dusk; still light but sun behind the ridge. A flock of perhaps thirty was going to roost in a thicket of large, densely foliaged oaks, as I went by. Very possibly it is the same flock, or part of the same, which I watched go to roost in the bay trees a few days previously (see earlier notes); the spot is only about 150-200 yds from the bay trees, and is in a similar gulley. Most of the birds were still on the ground beneath the trees when I went by, and they scuttled off through the dry leaves in haste and with much quit-quitting. At first I mistook

loss to understand why they should be in under there oaks, where the cover was but thin instead of farther out beyond the fringes of the trees, where the grass was thicker and weedy cover more abundant — until I realized that they were just upon the point of flying up into the trees for the night.

11/1/31 About 10 A.M. at the same spot. A rather scattered flock — or perhaps it is several small flocks — is moving about on the ground near here, feeding I guess. One can hear an occasional ca ca call in loud ringing tones, and if one draws near to the thick brush where they are hidden, one can hear a faint scurrying of retreating feet, and a subdued mo-mo note in undertone. The brush and thistles are so thick and so extensive from here to the road as it passes the swimming pool that it is difficult to catch a glimpse of the birds themselves. Each coming to the

opinion that several struggling bands of quail forage about the orchard, along the swimming pool and move down (usually by flight) across the road. and into this above mentioned brush and weed patch, just below the swimming pool — and thence out toward the "three aspen trees inside of circular fence" and then, perhaps, northward through the weedy cornfield (which is immediately adjacent) to the bray trees where first I saw the quail go to roost. Perhaps this extensive area is shared by numerous coveys — banding studies should determine this. at any rate it is rich in food bearing weeds and bushes throughout.

11/2/31 Alp. Cr. Ranch. on west side of ridge, in the Mindego region. I walked about over much of the (skyline) ridge just east of Mindego Hill but saw quail only at the little tumble-down shack (where I trapped McLellan poaching squirrels). There were a dozen or so at this place. This is in

accord with McLellan's statement that quail were present only in scattered, small, coveys over in this Windego region. What the reason may be for this scarcity I don't know. To be sure, there is no agricultural land over there, but there are numerous dense brushy thickets, with a fair amount of weeds and lots of snowberry and holly. Possibly it is as McLellan says - there are too many predators there, the land being steep, rugged hillsides (pasture), intersected with densely wooded and brush-choked canyons. I saw two red tails - one seemingly pursuing the other, with swoops and dives, and driving it from its territory, and then returning homeward - and heard a horned owl hooting.

11/6/31 Cornfield - Quail there as usual.

11/15/31 - The first day of the open season. O'Neill Ranch, Napa Co. Calif. - afternoon. On coming by the water trough next to the highway (on the "grade" just below O'Neill's) I stopped and looked for the quail which I had

seen there before (see previous notes). There were none to be seen, or heard. By the road side was an empty shotgun shell box, and some gobs of mud on the board fence where some one had scraped his shoes. I heard two or three shots in the distance, also.

Jack Ohell and a friend were out all that day hunting and got (about) 27 quail, none of them with a band. These quail were picked up here and there throughout nearly all of the Ohell land, not many being from any one place. The only place they didn't hunt was by the little spring behind the knoll (where the shack is) where I saw so many banded birds a short time before. The birds, they said, were all very wild, jumping up while still 100 ft and more away, and scattering into the brush. They didn't get a single shot at coveys when they first went up, only by working with the dog, in which case they got them as they rose up in twos and threes.

11/18/31 Odell Ranch – Jack Odell and friend(s?) got 28 birds today. I was not out there. None of the birds had bands. Jack says some of his quail have been seen on John ("Bush") Oliver's ranch, which is still further down the creek which runs past Odell's house (I think)

11/25/31, Odell Ranch – Weights of birds shot today.

✓1	♂	185.9	21	♂	188.5 ✓
✓2	♀	181.8	22	♂	178.9 ✓
3	♀	176.0	23	♀	174.4
4	♂	182.3	24	♂	201.2
✓5	♀	177.5	25	♂	185.4
✓6	♂	182.2 ✓	26	♀	179.7
✓7	♀	182.2	27	♀	175.9
✓8	♀	178.3	28	♂	196.5
✓9	♂	195.3	29	♀	178.9
✓10	♂	182.2	30	♀	not weighed.
✓11	♂	196.1			
✓12	♀	180.1			
✓13	♀	173.1			
✓14	♀	188.9			
✓15	♂	167.8			
✓16	♀	180.1			
✓17	♀	183.5			
✓18	♂	188.5			
✓19	♂	199.5			
✓20	♀	183.6			

Stomachs ~~contents~~ and crops saved for these.

None of these birds bore bands; they were shot from about 8:30 or 9 A.M. until about 3:30 P.M., with no attempt to separate early from late birds, and were taken from nearly all parts of the ranch. Jack and the others believe that with the coming of the rains (such as we have had recently), those quail which have been spending their time down in the orchards and cultivated lowlands at the base of the hills move up into the hills again, this upward movement being correlated with the sprouting of green plants which serve as food (and, I think, water as well, for the basis of which belief see below) yes (1934).

11/27/31 The Bert Gilpy place, Pinnacle Patt. Monument District, about 15 mi east of Soledad, Monterey Co., Calif. In the dry, sandy, chamise-greasewood covered hills. This country is quite unlike that of the Alpine Creek - or Okell Ranch, mi being much drier, with a corresponding lack of true vegetation. The country is rugged but the hills are sandy and for the most part barren of all

growth larger than ~~greasewood~~ chamise. In places this growth is very dense, extending for many hundred acres unbroken and composed practically solely of ~~greasewood~~ chamise as high as a man's shoulders. In other places the brush thins out to scattered dwarfed shrubs which dot the slopes at intervals of 6 ft or more, leaving the hills brown and sandy in appearance with a smart covering of a 2 day beard. In the canyons, which are narrow but often deep, there are oaks and other trees in some abundance as there are also on certain protected hill slopes. Archer Philbrick (Deputy) says that he has many times seen the quail (which are abundant in this section) come right out onto the tops of these nearly barren hills in their foraging. In such places they have no cover other than the bases of the stunted and scanty growths mentioned above, and at such times I should imagine that they would be largely at the mercy of any Accipiter which

might choose to try for them; however, Phillipps says they occur up there (in the spring, I think he said), quite commonly.

At Gilkey the main point of interest was a watering hole in a little gully between two open, albeit ~~greasewood~~ chamise-clad, hillslopes. This spring was no more than 2 ft in diam. and would not have been that large had it not been for excavations made by Gilkey, yet it was the sole supply of water for a very large part of the surrounding country. Two other places 2½ and 3½ miles away, respectively, offered water, these being other ranch sites but with the exception of these there was no free water for miles about. In consequence of this the waterhole mentioned is (in proper season) a Mecca for quail. Gilkey says that during the summer months he has watched the quail as they came in all day long, in coveys of varying size until the total number of birds which visited the spring in the course of

the day was several (1-3) thousand; sometimes there would be several hundred in sight at one time, he said. The quail visit the water regularly, according to him, until about the time of the first rains in the fall, after which they are not to be seen again in the vicinity of the water hole. Since there is no standing water elsewhere in the hills (except perhaps for an hour or so during a rain) it follows, according to Gilbey, that the quail are able from this time on to get enough water to suit their requirements from the sprouting vegetation. We could see for ourselves that no quail had been about the pool for a considerable time (it has rained frequently during the last month); there were no tracks or scratchings. In July and August the quail are most abundant around this water hole, for they bring their young with them at that season, thus augmenting their numbers many hundred percent.

It was noticeable that there was

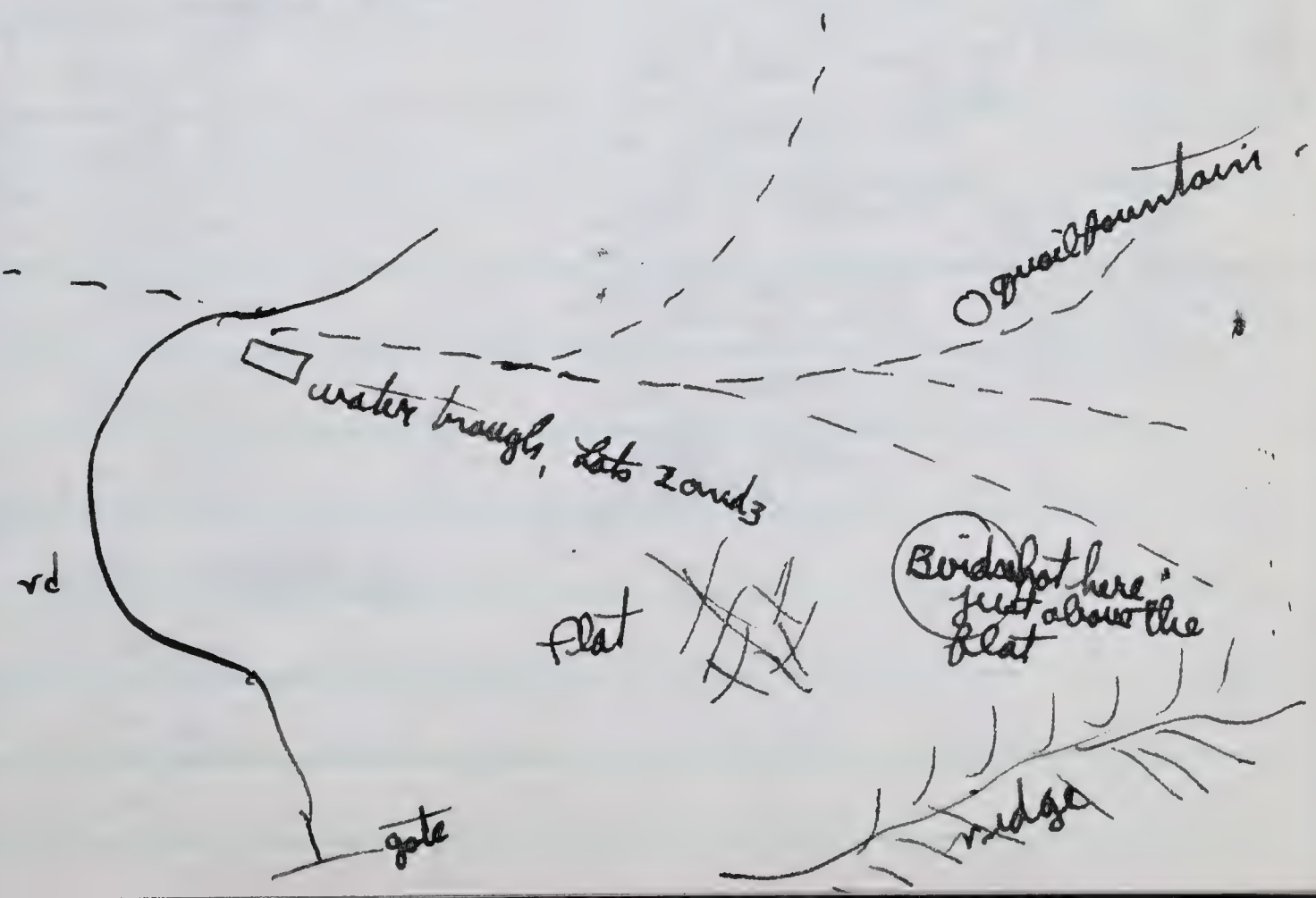
no brush, for cover and protection around this spring the nearest greasewood thicket (which extended unbroken from there on up the hillside) being about 25 ft. away. The birds, in coming to drink, thus must expose themselves considerably to the attacks of accipiters and other enemies, but they have to come anyway! Coyotes, bob-cats, are numerous, Philbrick says, with skunks present also, but not coons, it being too arid for the latter.

11/28/31 510 Russ Bldg. S.F. Leo Wilson maintains that this last spring and summer has witnessed a great increase in quail over previous numbers in the last few seasons, in all parts of California, citing Oroville and Long Valley, where he has hunted, as examples. Boaz (Berkeley?) says the same is true for Southern California. McLellan says the same for the Alpine Duck Ranch. Linsdale indicates the same situation, and points out that we cannot be sure that rodent poison campaigns are responsible for

the previous low point observed by Thos. Meehan (see questionnaire) and others for the last two or three years, because of this present increase when poison operations have continued unchanged, or, indeed, augmented

12/1/31 Interview with J. E. Cole, Extension Specialist in Agronomy, Agric. Extension Service of the College of Agriculture, Univ. of Calif., 116 Giannini Hall, Campus. He says that although the Experiment Station has studied the problem of reseeding ranges in California for years it has never succeeded in making it a paying proposition yet.

12/2/31 Quail brought home by Jack Akell from his ranch.



It was almost dark about 5 o'clock, when they came upon the covey containing the banded birds (see below) and yet they were not yet up in the trees to roost. It has been my experience that wild quail go to roost as soon as the sun gets low on the (visible) horizon, about 4:30 or so (see notes for previous observations). All the banded birds were taken at this one place.

1 A409242	♀	204.7	17 A409244	♀	181.2
2	♀	182.9	18	♂	184.6
A409306	♂	218.5	19	♂	not weighed tail gone.
A409227	♂	200.8			
5	♀	185.8			
6	♀	not weighed - tail feathers gone			
7	♂	211.8			
	♂	188.8			
A409265	♀	194.5 9			
10	♀	179.4			
11 11	♂	181.0			
12	♂	182.9			
13	♂	not weighed gone			
14	♀	152.6			
15 15	♂	177.6			
A409253	♀	169.1 16			

It will be noted that all but one of these birds is from lot 1, which was liberated on the other side of the ridge (see page 160 of banding note book for sketch).

12/5/31 Alpine Creek Ranch. Saw, and heard, a flock of quail in the usual place below the swimming pool. Undoubtedly the same flock or flocks have been there all the time since the last observations were made.

Buster McLellan says that he sowed wheat, barley, and oats in the deer paddock two days before Thanksgiving; keep track of the rate of growth of this.

12/15/31 Yesterday was so cold and foggy, with snow the day before (it was all melted by yesterday, though), but I noticed quail running across the road by the swimming pool in the same old place.

Jan. 5, 1932. Yesterday I caught sight of a number of gray forms running furtively into the thick weeds at my approach, with subdued quit-quits just where the road forks with one branch running down to the boat house. The weeds are thick in there. Today at 2:30, I saw about the same number (7 or 8) run across the road from near there, and into the weeds at the opposite side. If

is impossible to judge how many quail were really there, for did not try to flush them. This indicates that the flock below the swimming pool is still present there although since the long period of rain which we have had recently I have not heard a single cuca coo (at least a month) and have seen no birds or heard them whirring away in flight. They seem very secretive at this time of year for some reason.

January 7, 1932. The last four or five days, including today, have been sunny and warm, yet it was not until today - around noon time - that I heard the cuca coo call of the quail. At that time I heard two different individuals, one from down by the cornfield and the other from the direction of the "pine barrens" calling back and forth several times.

January 13, 1932. See notes under Weather Record for amount of snow. During ten minutes spent walking about

~~Jan. 23, 1932. See notes on weather for this~~

Lophortyx

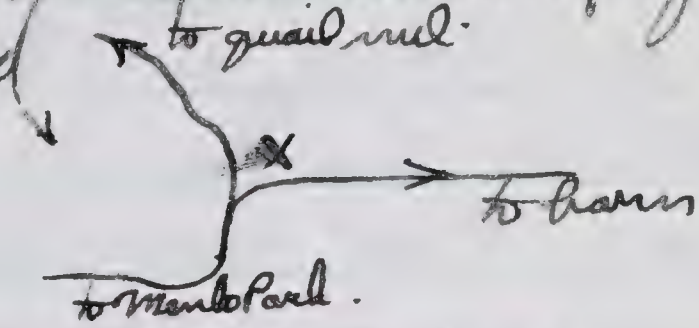
among the weeds and bushes below the swimming pool I saw countless quail trails meandering here and there through the undergrowth. A few minutes later I saw several of the birds just as they walked out from the brush onto the road. They moved more slowly than usual, with an appearance of sluggishness which was enhanced by their puffing out of their feathers and drawing in of their necks. to an unusual degree. Three or four of them stopped and stood still on the road in a listless fashion. When I had moved up to about 50 feet away they began at last to take notice, raising their heads, compressing their feathers, and assuming an appearance of alertness. Yet as I continued to approach they began to hurry into the brush and soon were out of sight. I don't really think they are suffering from the weather in spite of the appearance of listlessness; for cover is abundant and thick - as far as shelter from

the wind goes, and weed seed must still be plentiful. At the corn field I saw a flock of about thirty birds (in both flocks the sexes were mixed) in walking in scattered formations up the bare hillside, apparently feeding. They were at least a hundred feet from cover yet did not take alarm at my driving by at a distance of 125 ft. The weather does seem to have in some way made them less timid, although just how psychologically, I don't understand.

(continued on page 53)

Laphortyx.

Jan 22, 1932. See notes on weather for this period. To day I heard a quail call once or twice from the vicinity of the fork in the road



during the middle part of the day.

Jan 29, 1932. Alp. Gr. R. by quail enclosure (see weather notes). I heard a quail calling in a subdued manner once, at about noon today

Feb 22, 1932. Alp. Gr. R. just above quail enclosure. About 3:30 P.M., as I was going up the road, I heard a series of quit-quit and saw about four stocky little bodies fly from the open space where they had been feeding into the rank weed tangle to the right of the road. They barely cleared the grass tops in their flight. Evidently this flock below the swimming pool has remained there ever since last summer, although apparently diminishing in numbers.

Feb 24, 1932. Same place as above. On hearing some quit-quitting as I walked by I jumped into the brush at the

edge of the road and tried to get the birds to fly. The ground was thick and dry at this point, and about a yard in height, so that I made a great noise as I crashed through it; however, in spite of the commotion none of the birds took wing. For just a moment I caught a glimpse of small dark forms scurrying ahead of me among the tangled bushes, but they easily outdistanced me and I saw them no more. I was impressed by the speed with which the birds were able to run; they fairly shot about beneath the bushes, in a manner much more rapid than that which I have been accustomed. During all this time there were no sounds other than an occasional faint "quit-quit"; the whole incident serves as an excellent illustration of the manner in which the birds might elude observation (as that of a hunter) even though abundant. I think there must have been at least fifteen individuals present; perhaps

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many more, at least I saw seven or eight in one place and heard as many more moving off in another direction simultaneously.

Feb. 26, 1932. Alp. Cr. Ranch, on road from main entrance in, about opposite the water trough which is situated down hill from the corn field (now merely a grain in grain), as I drove by, a flock of about 15 quail sunned across the road in close formation, and were swallowed up in the thick brush; they are still in flocks, all right.

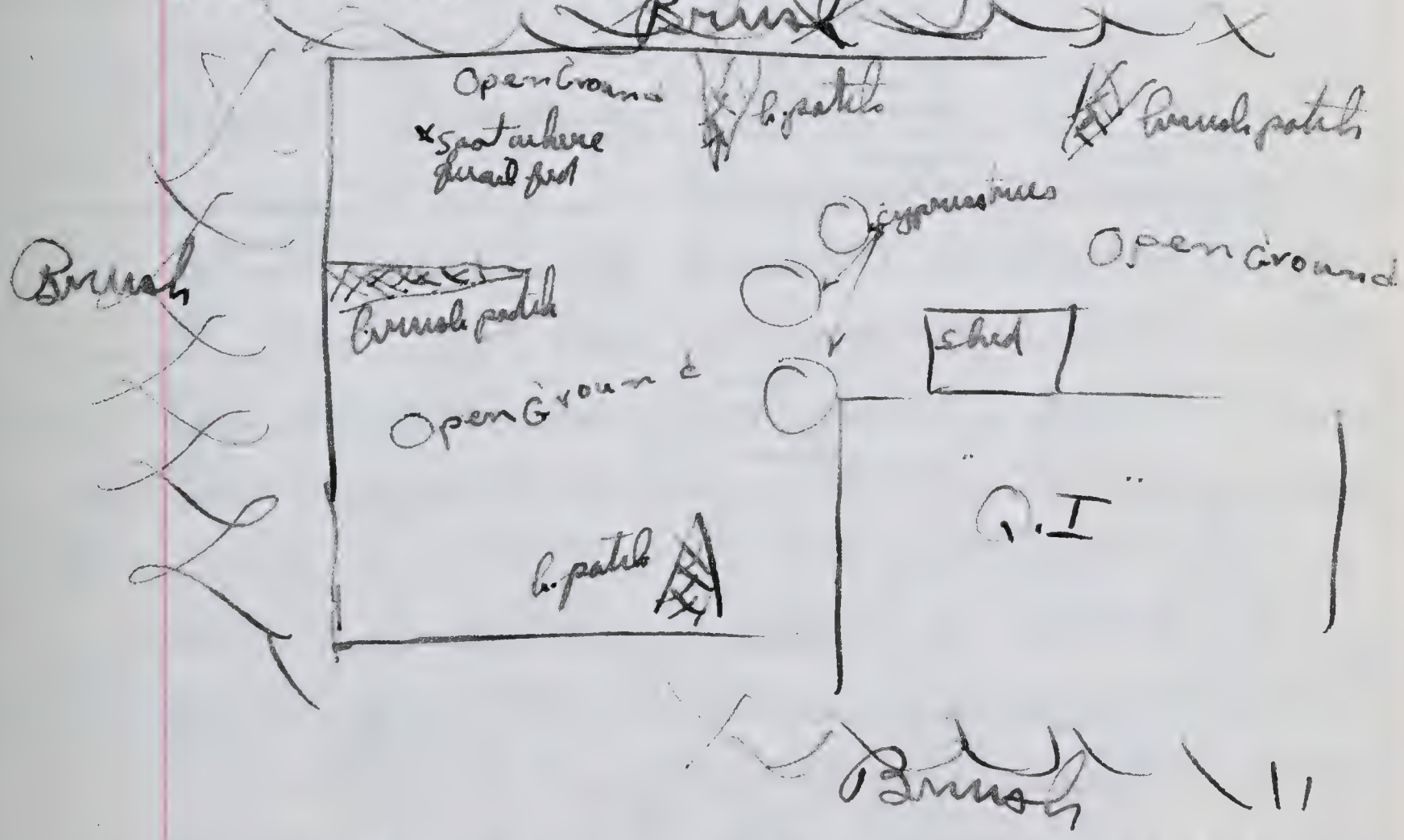
Mar 4, 1932. Today I saw a ♂ as it stood on top of a fence post near the Quail Inclosure (here after to be designated as Q. I), and called cú cá cóu several times; on the ground below I made out two others feeding, and there were doubtless others close by in the thick brush. Through the day I heard several more calls; they have increased in number (the calls, I mean) since we have been having sec. warm spring-like weather. On the way up to the Alp. Cr. Ranch,

also, I saw two birds, a ♂ & a ♀, half run, half fly, across the paved road in front of my car; the ♂ (think) got across just in time, but the ♀ was struck by my automobile and carried along by it for a few feet. I could hear her fluttering against the radiator for a moment, after which she disappeared. As I was not going fast it seems likely that she was not injured; at least she was not so seen in this mood.

Buster McLellan told me that he had seen two birds (♂ & ♀) together, in the absence of a flock, the day before, so that this, together with the circumstance related above, indicates that pairing is underway, even though it may still be in the initial stages.

March 6, 1932. Alp. Cr. R.; Q.I. about 2 P.M. A number of quail kept up an intermittent quitting and cackling just to the south of the ploughed ground; on one occasion I observed that one of the birds had

even ventured out onto the cultivated (bare) land, and was feeding there, apparently in the low clover patch (where many of the recently sown seeds are lying exposed, available to any bird which might pick them up. The bird steps which I had run out into the field from the adjacent cover, as places of refuge for the quail, were not near the place where this bird was feeding:



I heard my calling of quail today — a fine warm, sunny, springlike afternoon, than I have allunted

put together. The lengthening days must be having some effect upon their gonads.

March 7. Alp. Cr. R. Quail were calling actively again this morning, as on the previous day.

Mar 14, 1931. Alp. Cr. R. Cy Q.I. Today it rained steadily almost allday long (beginning the night before; see under Weather Notes), and yet the quail were heard cu ca calling loudly upon several occasions when the rain was still coming down (although not in a real deluge at the time, it must be granted). Evidently the approach of the nesting season induces them to call in this manner even when the weather is not fine, such is their ardor as the time draws near.

May 19. Light rains all day (see weather notes); still, I heard a bird(?) of quail quitquitting in the underbrush near the Q.I.; of course this isn't a sign of mating activity, though.

May 20. Alp. Cr. R. Quail were not heard near the Q.I. today except on one occasion. Possibly the coolness of the weather, following

a storm (see under weather notes) may have had something to do with it, although of this I am not at all sure. The one time when I did hear a quail call was notable because of the exceptional lateness of the hour. It was 6:35 – about a half hour after the sun had disappeared behind the hills, with gray mists commencing to steal up out of the canyon below. The resident pair (by the g.i.) of horned owls had been hooting for five minutes or more, and all attendant circumstances indicated that it was at least a half hour later than the usual bed time hour of quail; nevertheless I heard a distinct cú-cá-cow, one, from the willow tangle just down hill from the G.I. Indeed it mingled with the hoot of one of the horned owls farther down the slope, which was giving his evening serenade at that particular moment.

See under Pipilo maculatus, pp. 1-2, for a discussion of the possible

significance of the call notes given by quail, just at roosting time.

Mar. 26, 1932. Alp. C. Ranch. Heard quail calling (cú ca cáw) several times this afternoon.

Mar 27, 1932. Alp. P.V. by Q.I. Heard quail giving the cuca cow call several times during the day. On Mar. 21 I began scattering grain (scratch feed + whole corn, sunflower seed, and millet) in two places where I plan later to trap some quail. On the 25th it was all picked up, though how much was taken by mice and passerine birds and how much actually by the quail, if any, I don't know. Today I found most of the grain which had been scattered on the 25th gone, so put some more in the same place. At about 3 P.M. when throwing a stone at a rabbit, I frightened two quail from the vicinity of one of these grain stations.

Buster McLellan told me today that on two occasions recently he has seen the redtail which

lines at the top of the hill flying off with quail in his talons. Possible dictum, if true! One of these times the episode took place in the goat yard (up on the hill above the stables - I saw quail there last summer). As Buster and a friend of his went by they caught sight of the red tail just after it had risen from the ground; in its talons was a quail, still fluttering and kicking. The hawk was more or less under the trees and got under way with evident labor, flapping his wings heavily. Buster said that it was so close to him and his friend, that they could easily see the quail. He said that this hawk was not one of the little cooper hawks (of which he has shot two - see A. cooperii) but was unquestionably a big red tail. He ought to know - however I should like to see it with my own eyes. Incidentally, it may be mentioned that there is plenty of time which

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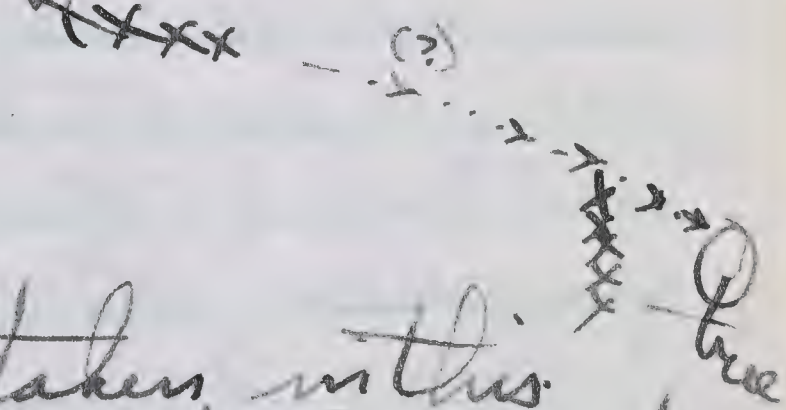
in which the quail can take cover at this particular place.

At 6:45 P.M., with the sun down for about half an hour, and only a pale orange glow above the mountain ridge to the west, I discovered some quail going to bed by the Q.I. They were running furtively, and with some hesitation along the edge of one of the lunch pipes which had made for their convenience (see antea), in the direction of the large oak which over hangs the water faucet. They appeared to have crossed over the bare ground from the nearest out cropping of lunch (also placed by me) on the other side of the fled pates, but I



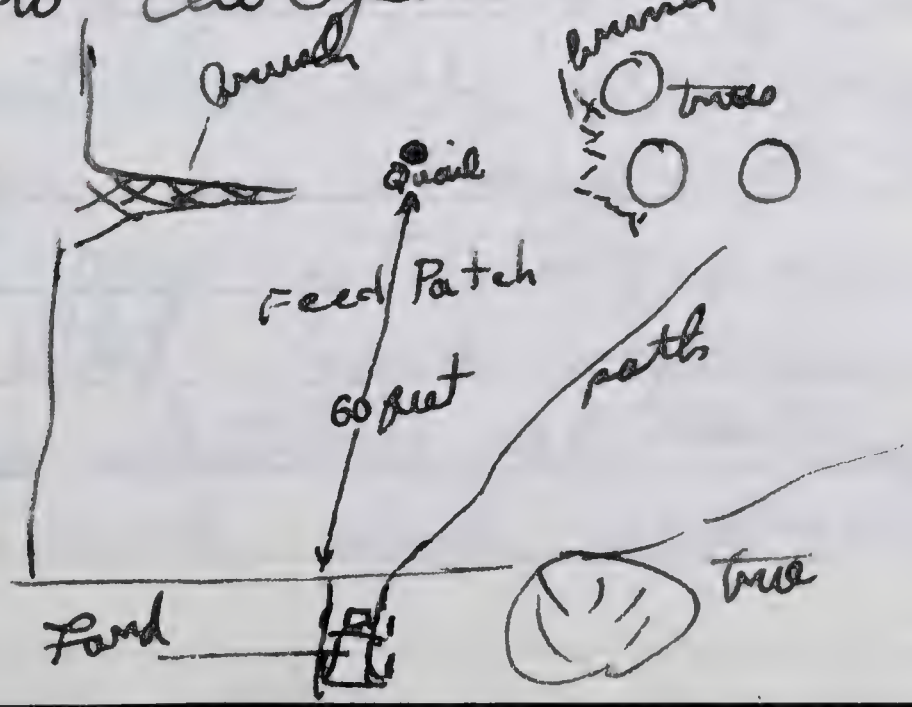
may be mistaken in this. I had apparently just glimpsed the tail end of the procession, but saw four or five before they

crept in under the low spreading branches of the big oak tree and gathered, by the sounds that they were make. Evidently the birds are still roosting in flocks, at least.

In about a minute the birds began to fly up into the branches of the oak; presumed roosting and at the sound there was a chorus of quit-quits, and several whirring lift-bursts of wings as two or three individuals moved thirty feet or so down the line and settled again. After a few more subdued quit-quits all settled down quietly.

Buster says that there is a big flock of about 200 birds down by the tractor, where he has been working (= cattle trough by corn-field in notes ante); but that in the vicinity of the swimming pool (= Q.I) the birds have begun to break up into small groups and go in pairs, at least part of the time.

April 2, 1932. Alpine Creek Ranch. (Foggy - see under weather notes). Gordon Lane and I were bringing great armloads of brush from the Ford car, at the edge of the quail feed patch, over to the Q.G., when suddenly three quail rose with a whirr of wings from the very center of the open ground of the recently sown feed patch. They must have been there while we were driving the Ford over ~~there~~ to the edge of the patch, a point only about 60 feet from where they were. This testifies to their lack of wildness. What they had been eating there, if anything, I don't know; possibly tender young seed sprouts. An out-lying brush patch was nearby, and may have emboldened the birds to venture out so far into the open.



April 6, 1932 Alp. R. Ranch. Something has been cleaning up the grain regularly while I have been putting out at the two quail trapping stations; if I put out a large bucket-full (divided between the two stations) on Monday it will be all gone by Wednesday; Wednesday is all gone by Friday, etc. Even the kernels of corn are gone; only the empty seed coats of the sun flowers remain. I am sure that other birds beside the quail are getting this food, for I frequently see Calif. thrashers and brown towhees walking about and scratching at the feed places. I am certain also, however, that the quail are coming to the food, although I have not seen many of them there. Occasionally I can make out one or two walking about close by, but by the time I go near enough to make out the trap site they have long since melted back into the brush — this stealthy retreating without a sound, and scarcely a rustle.

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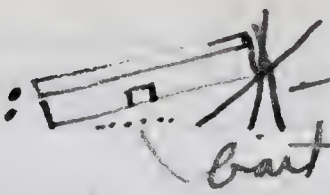
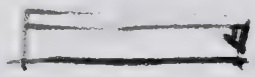
I have noted in the quail here on several occasions; one might never suspect their presence in fact, if one were only a transient visitor there. For example, today, as I approached one of the trap sites — which is located at the edge of a thick tangle of willow, blackberry(?), snowberry, etc — I heard a faint rustling of small bodies moving away beneath the tangle en masse, from the trap. Although I peered in intently I could make out none of them before they rustled off into the distance, but I think they were quail because: (1) They ran, instead of hopping, jumping from branch to branch, or fluttering

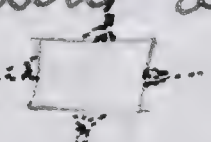
(2). They moved off in flock formation, that is to say there were three at least, flying together, in the same direction.

No sound was made by any of them.

On April 4 I placed the two traps (Staddard design →) so that they overhung the baited ground in

this manner: 

permitting the birds to run in and out freely beneath. The bait was again all gone, showing that the birds were not alarmed by the presence of the traps when in this position. Today I removed the stakes, so that the traps rested flat on the ground, with the doors wired open 

; bait was scattered chiefly inside, with a trail of bit leading to each door  .

April 8, 1932. Alp-Creek Ranch. 6:58 P.M. Sun has been down since about 4:30; the after glow has nearly vanished from the sky, the brighter stars are shining clearly and a crescent moon is yellow and bright; it is so dark inside the quail blind, or shack, that I can't see to drive nails, yet: for the last ten minutes or so I have been hearing two ♂ quail calling cuca cow, cucacow, from two different places - one near the first trap site and the other near the

second trap site (the sites were chosen, of course, because those spots had appeared to be points of rendezvous for quail). This is mighty late for them to be calling thus; mingled with their notes is the distant booming of a hammerhead.

Most of the grain has been cleaned out of the traps, and all of it around the outside is gone — evidently quail, or some species of birds, are not daunted by the new position of the traps.

Heard no more quail calls after 6:58.

April 13, 1932. Q.I. Quail were heard calling frequently in the rain today, the ce-cá ców call (see weather notes). They were seen and heard in the vicinity of trap no 1 (the traps were set for the first time today) but none was caught, probably because the trap was full of golden crowned sparrows, towhees, and thrashers nearly the whole time (I captured about 16 in all with the two traps). Once, when I was first setting

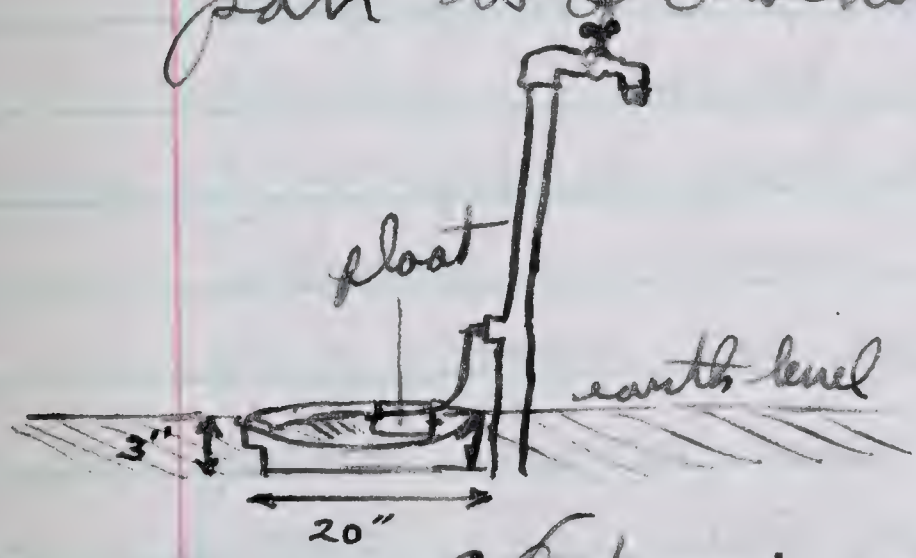
trap no. 1 I heard the oulrdved
mo-mo-mo call, and looking
up, caught sight of a ♂ quail
skating about under the thick
bushes about 20 feet from me,
apparently eyeing me attentively.
Two double compartment
Potter traps I also set out, for the
first time, today; they were set
too, but caught nothing except
one thrasher.

April 15, 1932. Traps set from 11:45 A.M. until
about 7:30 P.M. One of them was
moved over to a new place, since
it had caught nothing at all in
its first location. I caught about
four golden crowns, 1 S. ♀. towhee,
1 thrasher, 1 fox sparrow, 1 song sparrow,
and four brush rabbits (see
under Sylvilagus bachmani bachmani
for details as to capture of latter);
consequently the traps were
spring and in a state of
considerable uproar, most of
the time. Quail were seen once
running from trap no. 1, as
I came up, but none had

been caught, and all it held was a frantically struggling rabbit. Quail were, indeed, heard calling (cu ca cow, quit-quit, and mo-mo calls) within fifty feet of the traps (the birds been screened by the dense undergrowth) all afternoon. Evidently they are much more suspicious about entering traps than are the opossums, towhees etc, and the rabbits. The fact that such vegetable feeders as fox sparrows, golden crowns, and towhees are coming readily to the traps indicates that even at this time of year, when green plants are most luxuriant, seeds are an acceptable article of diet to a vegetable feeding bird, and that the lack of readiness to enter the traps shown by the quail is occasioned more by timidity than by indifference to the grain.

On April 11 I made a drinking fountain for quail just outside the Q.I., about 15 feet from

one of the feed patch brush piles, and about 10 feet from the big oak tree ~~to~~ into which I have seen the birds go to roost occasionally (see ante). I piled brush around the drinking pan, and scattered grain about, but although several golden crowned sparrows have come there no quail have been seen as yet; this is but natural, however, since we are working very close to the place all day long. The water pan is of crockery, like this:



April 16, 1932. Victory! To day, the third day on which the traps had been set, I caught my quail. I had had to catch four brush rabbits and about 20 sparrows etc. first to get them out of the way, but at last it was done. At about

1 P.M. I found a pair of quail in trap no 2. They were banded as follows:

♂ 439322 , also a red celluloid band
♀ 439321 , " " " " "

and released inside the Q.I. at 1:03 P.M. Unfortunately, in my hurry and jubilation I forgot to weigh them.

A short time later I caught a ♀ in trap no 1. and put her in to the central compartment of trap no. 1. After lunch I found that a ♂ and two more ♀s had entered the trap. I took a chance, then, that the ♂ had come in response to the presence of the ♀ in the central compartment, since the two additional ♀s were on the opposite side of the trap from him. Accordingly I took the ♀ from the center, and the ♂, and banded them as follows.

♂ 439324 wt 182.1 also a yellow celluloid band
♀ 439323 wt 215.7 " " " " "

They were then released inside the Q.I. Possibly the ♂ did come in response to the ♀, but if so, then they must not yet have been mated, for their subsequent behavior inside the Q.I. has been entirely unlike that of the red pair. For this see later on, however.

One of the two additional ♀s was put in the center of trap ①, while the other was taken away from there altogether and put in the center of trap ②, which is 500 feet away, on the other side of the quail ~~feed patch~~ experiment station area; judging from the lay of the land I should think that this new location would be outside of her territory and that her mate, if she had any, would take a long time to find her. Nevertheless, at 7 p.m. I found that this bird had lured a ♂ into trap two with her; I think from this (and other observations to be mentioned later) that there is a considerable number of unattached males still,

roaming about.

The other ♀, left in trap ①, had also attracted a ♂. All four of these birds were killed (preserved in formalin) ~~See~~ It is interesting to note:

(1) ♀s weigh more than ♂s at this time of year

(2) wheat grains are picked out from all the rest of the scratch feed bait (wheat, maize, sun flower, corn, ● ○ ← a little white flattened seed, designated as x below) and eaten in much greater number than any other kind. True, wheat is more numerous in the scratch mixture than any other kind, but maize is almost equally abundant and yet I saw none at all in the crops.

I added millet and corn to the scratch mixture.

Data regarding four birds mentioned above.

Sex.	wt.	Gonads
♀	193.4	Two large eggs, one

almost full sized but no shell. No brood patch. Ovarian tissue much enlarged. Crop contents sorred; all wheat kernels, practically.

Sex	wt.	Gonads
♀	203.7	about as in above.

Crop contents - mostly wheat; some millet also, one or two barley grains and a few X; a few grass blades, too.

Sex.	wt.	Gonads.
1 ♂	174.6	Bluish gray, about the size of small beans. ○.

Crop contents - mostly wheat; some grass, 1 butter cup flower.

Sex	wt.	Gonads
1 ~~1852~~ ♂	183.2	Same color as above; very slightly larger.

Neither of these two birds had gonads as large as those of a San Francisco low-bee killed at the same time [○] !

Crop contents - wheat mostly;

a few X, millet, a little grass.

The two pairs liberated inside the Q.I. are not exactly wild but they are secretive as the devil. I can look out of the window almost any time without ever seeing a quail, and it is seldom that I can locate more than two at a time at best. If I appear in sight they walk into the tangle of shrubs and vines at the east end of the Q.I., not panic-stricken, but in a wary manner; that, indeed, is where they have been spending most of their time. However, if I keep out of sight I can talk, pound, slam doors, and make loud noises without disturbing them, or even causing them to look up from their feeding if they are out in the open. One would think they were deaf, they seem so oblivious to sounds of this sort (but see later note on reactions to call of another quail). Indeed we have been putting up shelves and building cup board inside

out. It called or ca caw frequently, too, and I think that it has given all the calls of this type which have emanated from the Q.I.; at least ① I have never seen the red ♂ give this call ② I have seen ♂s that were trying to get in to the yellow ♀ (see later) give it, and ③ Stoddard's ♂ bobwhites only called thus when unmated. Evidently it wants to join its hundred outside so much that it feels no interest in the yellow ♀, who is usually at the opposite ~~corner~~ side of the Q.I. I have never seen it near the red pair at all.

At about 6:15 I noticed one or two quail by the house path on the outside of the Q.I.. The yellow ♂ was much excited, pacing up and down opposite them, trying to get out. One of the ♂s on the outside came around the west side of the Q.I. to within 20 ft of the observatory window. I don't know just why the outside quail were attracted — whether as burials in armour or just from

Lophortyx.

Gregariousness.

6:50 - Dusk, a glow of yellow still in the sky, however. The red pairs feeding right in front of the windows, on the bare, newly sown ground. They are not eating the tender young plants, however, but the seeds (blue clover, sour clover, rape) that have not sprouted and are lying on the surface.

7:03. First bird heard flying up to roost - they are in the big oaks this time. It is deep dusk. Subdued quit-quits are audible

7:13. Last calls heard at this time. The red pairs had been feeding until the last minute before they flew up into the trees (at about 7:03)

Frequently today I saw all of the 4 birds eating butter cup flowers. I saw a bird outside the Q.I. do this too. Since the plants are taller than the birds, the latter have to make a little jump to reach most of them; the wings do

not seem to be used in this. The flower is bitten off and swallowed entire as soon as plucked from the plant. Perhaps this explains the long stalks of bitter cup flowers — natural selection was weeding out the short stemmed ones pretty rapidly in the Q.I. today.

I note the fondness of quail for the two thrashers inside the Q.I. also, and of course, the other passerines which have been clattering up the quail traps, for sparrows, even at this season when green vegetation is at its most luxuriant best.

April 18. Last night I found a pair of quail in trap no. 1 at dark and kept them over until today. They were banded, as follows:

1 439326 ♂ wt 173.5 banded alg with a red band.
1 439325 ♀ wt 179.5 " " " " " "

I released them at the spot where captured, but unfortunately they flew, in spite of my precautions, and in characteristically opposite

directions, one going north to the cornfield and the other south toward the swimming pool; they must have been 1000 feet apart, with the experimental grounds between, when they finally alighted; hope they'll find each other.

The red pair is quite at home, seemingly. Always the two birds go about together, feeding out in the open in the late afternoon (I haven't yet watched them during the early A.M.), but remaining under cover (at least today) during the warm noon hours. The ♂ always seems to lead, the ♀ tagging along a few feet behind, and if she stops for a moment to pick at something or other her spouse gets ahead & she comes scurrying up in less than a minute to join him again. One or the other keeps up a continual mo-mo, so low that it is hardly audible at ten feet. I suppose this helps to keep them together.

Our great concern today has been for the yellow ♂. Nearly all afternoon he has been running back and forth in his regular place on the south side of the Q.I. Some quail from outside have been attracted, apparently by his loud cu ca cows and by his low excited quit quits and have come up to the fence on that side, where the brush has been placed around the drinking fountains. Some if not all of the outside quail so attracted are in pairs, so that it must be gregariousness rather than hostility which brings them there; however, I note that it is the ♂s who try to get in through the wire, while their consorts pick and walk about unconcernedly — so I still don't know whether it's rivalry or gregariousness. At times there are quail at both ends and at the far side of the Q.I. simultaneously (this was about 2 P.M.) They called cu cacow, that is the ♂s did, and squill-squill in

excited tones, and tried to get through the wire into the Q.I. Part of the time the yellow ♀ was at the north end close to the wire, being followed closely on the outside by several ♂s, while the yellow ♂ was at the south end of the Q.I. trying to get out there. Some of the ♂s are single comb, for they are very bald and run the whole length of the wire trying to get in, and are not seen near any ♀s on the outside, but only near the yellow ♀. One two outside ♂s approached the yellow ♀ simultaneously, whereupon one ran at the other with lowered head and drove him into the underbrush, returning to the yellow ♀ after a couple of yards pursuit.

For a good part of the afternoon this excitement kept up. Later the birds at the south end went away and the yellow ♂ squatted down and appeared to doze at least

he stayed there from 4:15 until about 6, motionless except for an occasional flicking of his head from one side to the other. He kept shutting his eyes for a moment, only to open them in 10-15 seconds, after which they would close again for another 10-15 seconds, and so on. Whether this was healthy resting or not I don't know; it certainly gave him a sick, drowsy appearance. I noted, too, that he gaped spasmodically, on several occasions, just like a chicken with the gapes. Of course all that running around, with its attendant excitement, might make a normal ♂ sleepy; it is perhaps significant that none of the ♂s coughed so far this season quite caught as much as the ♀s.

~~Few~~ Towards dusk the yellow ♂ was again stirred up by

outside quail, and man back
and forth as before. Just
at dusk, however, he suddenly
ran straight to the feed
patch beneath the windows
(where I have been scattering
some grain) and fed for
several minutes; this shows
that he had high enough
became acquainted with
the location of things inside
of his enclosure. His feeding
was interrupted by a outside
quail before long, but was
commenced again a few
minutes later, this time
in company with the yellow
♀. They actually fed close
together for a minute or
two. The red pair, also feeding
close by, too, but there were
no hostilities. At 7:03
the red pair, or the yellow ♀ or
both flew up into the trees
beyond the Cascaras and in the
oaks; the yellow ♂ stayed
on the ground and man-uck

$$\begin{array}{r} 21.8 \\ 17.7 \\ \hline 19.1 \end{array}$$

and forth in his usual fine for some time still. He most certainly took his time to eat this evening, though did the other birds, especially the red pair. The yellow I spent some time ~~too~~ just before going to roost running back and forth too, but he went to roost before the yellow I did. He finally flew up into the bushes directly above him, at about 7:05; for a few minutes there were rustling sounds as the quail shifted their positions among the branches, and the usual chorus of quit-quits, but at 7:07 all was silent. These quail have their roosting almost to the minute.

8 p.m. 3 quail found in traps no. 1.

no.	wt.	
439327	190.1	A red and a yellow-band on 1 leg.

released ~~into~~ dark undermost ~~the bush~~ 7 P.M.

Lophortyx californica
californica

I forgot to mention that the "squill" call is given with great vehemence, this being indicated not only by the sharp staccato quality of the sound, but also by the violent bobbing of the head at the moment of utterance; the head fairly snaps. (but I wasn't able to see distinctly whether it jerked up or down at the precise moment of delivery; better luck another time)

I should mention also, that just as the quail are settling for the night (this applies to birds outside the milosine particularly), when they have flutterred up into the mesquites and are shifting about a little before becoming quiet (about 7:03-7:08) one hears from various sections of the surrounding territory, the cicada call - it seems almost like an "even song" (see under Pipilo m. falifer for discussion of this).

April 20, 1932 - Caught no quail today despite of the traps being open; indeed I caught only 2 birds of any sort (S. coronata),

Lophortyx californica
californica

and E. L. S., Sr., who put out three traps for the day, caught nothing at all. Attribute this lack of birds to their general inactivity during the day, which, in turn was due to the windiness of the weather, it being cold, with a gale of wind blowing nearly all the time (see under weather notes). Heard not a single cucacow all day long and saw only one quail outside the enclosure during the entire time, this one being a lone ♂ which was trying to reach the yellow ♀ for several hours between about 11:30 and 3:40.

The general impression left by this days observations was that activity was much less than usual - occasioned, in part, no doubt, by the boisterous weather, but also, I think, in the case of the yellow ♂, by a growing acquaintance of the new, circumscribed environment. Notes taken are as follows (recorded from memoranda taken at the minute of observation) -

Lophortyx californica
californica

11:30 A.M. After looking in vain for a sign of the birds, with the X 12s, discovered them in the brushy n.w. cor. of the I., by crawling there (on the outside); the one ♂, mentioned above, was in company with them at the time but sneaked off into the brush. For the rest of the day R♂, R♀ and Y♀ stayed in the brush of the east side, not venturing out into the open once during the time from 11:30 till 6, when we left. They could be glimpsed, occasionally, in the brush, only with difficulty.

The yellow ♂ did not spend much time running back and forth along the fence as he had before. Instead he squatted at the edge of the brush, near the atlas, appearing to doze, his eyes opening and closing just as noted on the previous day (but no gapes this time). He squatted down with his belly on the

ground and all his feathers puffed out, giving him a curious dumpy appearance . I suspect that this dozing posture and habit is normal after all, for I observed the red ♂ holding the same position for an hour or more not three feet behind the yellow ♂. Evidently they never quarrel. The hen ♂ on the outside was walking upand down, but neither of the ♂'s paid any attention to him; I could not see the ♀s at all.

4 P.M. Birds feed intermittently in the brush, but for the most part just sit; often not moving for ten minutes or more, and then doing no more than scratching their heads or preening hers a moment. The hen ♂ outside was also observed to merely sit for long intervals during this period — so was a thrasher and a golden crowned sparrow which are also in the pen, although the

Laphonty's c. California 91.

thrashes did not keep still for such long intervals as the quail, while the golden crown kept still for an even shorter period (Hurlbut's, or someone's, law?) — there they all sat, though, deep in the brush, with the wind blowing hells bells outside in the open! Who says birds don't ~~need~~ loaf!

5:28 P.M. Yellow ♂ suddenly ran out to the bare ground in front of the house and fed for a moment, then drank water at the spray that was issuing from the hose. (turned on gently at 11:30 A.M.). He then ran up and down along the fence at his usual place at the south side for a few minutes, then stood still, humped up, and dozed alongside of one of the thrashers, which also was dozing, apparently. At 5:45 he suddenly came to life and scuttled into the underbrush, as E.L.S., Sr., walked down the garden path, 50 ft away. We left at this time; the wind was

Lophortyx c. californica 92.

still blowing, it was cold, and no quail were visible.

April 22, 1932 Arrived just about the time the quail were going to roost - so took care not to disturb them unduly (they may have been frightened away from the enclosure feed patch, or patch of bare ground (to be hereafter designated as 9. F.P.) by our coming however).

7:04 P.M. (dusk) One bird flew up into the oak branches, but failed to find a suitable perch, probably on account of the wire, and came to earth again.

7:05 One bird made it (too dark to see what bird, though). There are one or two quail moving around just outside the enclosure - unmated ♂s, I imagine, and these are commencing to fly up into the branches of trees just outside the enclosure.

Thrown out several handfuls of ① fine chickgravel and ② fine shell a few minutes earlier; also some scratch feed. One of the quail came up and ate the grain but

ignored the grit and the shell-tips inspite of the fact that I had not put any of these materials into the P.P. before now. A ♂ did pick up one piece of shell while eating the grain, but no ♀s did. The same ♂ also ate a green leaf of some sort, either a grass shoot or a tiny rape plant, probably the former.

The yellow ♂ was noticed to be more tractable and at ease than heretofore, spending more time at dusk eating with the rest, and less time running up and down by the fence than he used to. Once when he and the red ♂ and the red ♀ were feeding near together (about 2ft apart) the red ♂ made a little run at the Y ♂, and pecked at him; the Y ♂ had stepped out of the way, so that he missed, however. Both ♂ birds continued feeding after this as though nothing had happened; gradually the Y ♂ wandered farther away.

At one time three of the birds

were side by side at the drinking pan at the base of the observatory; they have learned of its location already, thus. None of them spent more than a few seconds drinking; at this time of year they seem to get plenty of water from the vegetation that they eat.

7:05–7:12 – ~~All four~~ The three remaining quail had gone up into the branches by now as had the several quail on the outside of the Q.S. For a minute or two there was the usual shifting about with quit-quits, but at 7:12 (deep dusk) silence prevailed.

April 23, 1932.

5:10 gray dawn of a cloudy, chilly day. First quit-quit-quit calls heard from inside the Q.S.; others, from the bushes outside the Q.S. followed almost immediately thereafter. Several cu ca coos were given shortly afterward – from the bushes outside, I think.

[Dolep].

9:05 Y ♀ (presumably, but surely)

is walking up and down by the south fence; alone ♂ is running excitedly up and down on the opposite side of the same fence. Both continually give vent to the quit quit calls, something as follows (♀) - - - - - , (outside ♂, answering) - - - - - - . The ♂ seems definitely to answer the call of the ♀, at least their calls always come in couplets, with a pause between (i.e. before the ♀ starts again), and the call of the ♂ always follows the call of the ♀ thus: ♀ calls ♂ calls, pause, ♀ calls, ♂ calls, pause, etc, etc. Sometimes there is a variation in the number of quits (or letter perhaps, "pit"); no one should publish bird calls, I think, unless he has heard them at the closest possible range), as follows: - - - - , and - - - - - - - - - - (each - equals a "pit").

11:A.M. Yellow ♂ perched about four feet up in a Bauhinia bush on the east side of the Q.D. called cuca cow loudly several times,

then flew (a thing I have not seen him do before), about 3 ft above the ground, over to the s. fence, where he walked up and down separately for a while. He was not altogether lost this habit yet, although slowly getting away from it. Presently he stopped, then squatted down and "dozed", as he was done before (see antea), eyes opening and shutting in a drowsy manner. 11:10 (about) The Rpr. came out of the cover on the east side and feed for 5 minutes on the G.F.P., not picking up grit or shell, but only grain. At the end of that period something must have scared them for they suddenly flew about 20 ft from the ground back into the brush on the e. side. At 11:15 they came out again, just to the edge of the brush, and fed again. (Unless I specifically say that the birds were eating green stuff all notes as to feeding refer to what seems to be the action of picking up seeds — though what the seeds may be

I am not sure. all this time (from 11:7 m - 11:15) the Y ♂ was running up and down the s. fence, occasionally calling ca ca cow.

11:50 R♂ standing in underbrush (e. side) preening; the 2 ♀s are standing in the thick brush, quietly, just behind him. I have never seen the ♀s show any hostility toward one another. The Y ♂ running up and down at his usual place, with a lone ♂ from outside trying to get in at the same section

12 m. Red pr. feeding contentedly at s. side (they never try to get through the wire, nor do they get excited at the presence of other quail on the outside); both Ys running up and down, trying to get out, accompanied by the lone ♂ from the outside.

3:40 The red ♀ was dust bathing, just like a domestic fowl, at the edge of the brush, in a little area of loose earth. She crawled around, scratch out a little hollow, fluff out her

feathers, and squat down into it, turning partly onto her side, and every now and then picking at the dirt around the edge of the hollow, as though she had found some scratched up seeds there. The ♂ stood near her, and presently, when she got up out of the hole and moved off a few steps, he took her place and scratched and wallowed too; then, in another two minutes, this walked out further into the open and began to feed. (Today is a chilly, overcast day; see under Weather Notes).

3:45 P.M. All four birds now out feeding on the Q. S. F.P.; the yellow ♀ tends to stay near to the yellow ♂ — at least might now she does.

3:48 - Suddenly, while they feed, the (same?) lone ♂ appears on top of the Q. S., running about on the wire over their heads and making quite a tintinabulation! On several days before this I had been mystified by this peculiar

drumming sound on the wire, and by its trembling, but had not been able to see the cause.

While I looked, suddenly all four birds inside flew into the house again, with a whirr of wings, while the bird on top went away too. Possibly this fright was occasioned by the cooper hawk to be mentioned later. A few minutes later the redpoll went back to the feed satch, the ♀ leading and the ♂ following, this time. I notice that whenever two, three, or only one birds are feeding within the distance that I can hear them they utter the subdued mo-mo note almost continually; it must be a flock note, for the purpose of keeping the birds together. At fifty feet it is nearly or quite inaudible.

The yellow ♂ began at this time (about 4 p.m.) to run up and down once more (the ♀ was not visible); once he scratched his head (this is a common action, just as it is with domestic fowls.

Lophortyx c. californica. 100

4:03. Red pr. at edge of brush feeding. Y ♂ made a number of little pecks at one of the thrashers which lives inside the G.P., as it followed him back and forth at the s. side of the fence. I have watched the thrashers run up and down, following (but also passing) the yellow ♂ at that particular spot for several days, but haven't mentioned it because I have been so completely in the dark regarding its significance, if any. I am still in the dark, but, anyway, can record that the yellow ♂ made a peck at the thrasher today whenever the latter passed close enough to him. Y♀ still invisible.

4:15 Y♂ running up and down once more

4:27 red pr. feeding in front of window (G.P.); Y♂ running up and down. Suddenly the red pr. darted into the brush with a

whirr of wings, while the ♂ froze in his tracks and squatted down so flat upon the ground that he was almost invisible from the window (he was at the fence, at the edge of the cut brush ✕).

While we looked (E. + I) he got up and darted for cover and at the same instant a large cooper hawk (must have been a ♀) pounced down from above and struck the ♂ wave directly (6" or ft) above him. The yellow ♂ didn't waste time crouching this time but vanished into the bushes together with the thrasher that had been with him. The hawk did not stay around either, but disappeared into the brush at the east side of the Q. I, as soon as he had missed his strike. A moment later I heard a bang, as of some very heavy swinging limb, and out ran the yellow ♂ from the bushes at that side; the hawk must have tried again. The ♂ stayed out in the open, up to s. fence,

for some minutes, motionless, then began his running up and down again; a few minutes later he went back into the brush for good. The hawk must have gone quite away, for I heard and saw him no more.

Two quail were taken in the traps at dusk:

	No.	Sex	Trap.	Wt.	Colored band	Remarks
repeat →	439327	♂	I	—	red, yellow, left.	Repeat released at trap site.
	439328	♀	II a	199.5	white, left	Released at trap site at dark 7:25

In proof of the inability of quail to see even at deep dusk:— ♀439328, released at 7:25 P.M., fell straight to the ground 4 ft below when I put her onto a somewhat reserve branch. She did not attempt to fly or even break her fall. She then walked slowly and hesitatingly further into the brush.

April 24, 1932. Rain last night, ceasing about 5-7 A.M. Cloudy until about 9. (See under Weather Notes).

11A.M. This morning has furnished a fine example of the great degree of leisure that quail enjoy, at least at this season.
The sun was out (at 11A.M.) and all four birds inside the Q. D. were loafing. There was a lone ♂ outside, but even he "just sat" for a great part of the time. The four inside preened, scratched, and picked up bits of food intermittently. One ♀ was seen pulling at the leaf of what seemed to be Geranium dissectum. One of the birds, or perhaps it was the lone ♂ outside, gave a single low note of alarm, whereupon the red ♂ and the Y♀ ran immediately and simultaneously into the cover, the Y♂ remaining outside, in view, but in an alert posture.
11:03 All four just at the edge of the brush, close together, preening at the same time.
11:10 All four preening and sitting down, the Y♂ a little apart (2½ ft) from the others.

Lophortyx c. californica

11:20 ♂ left the thatches and came to the Q.P., where he ate seeds for a while. While he was doing this the lone ♂ came walking out on the top of the Q.P., just above him. None of the Q.P. quail are alarmed at the sight of one of their kind on the wire above them, silhouetted against the sky, but I'll bet if you put a Cooper hawk, a red tail, or even a sparrow hawk up there they would get the hell out from under neath! So much for their powers of discrimination. The lone ♂ next flew down and came to the S. side, where some cuca cooing and squilling went on for a short time (don't know by which bird, though).

1:04 The lone ♂ is perched on a stub about 1 1/2 ft from the ground just outside the Q.P. on the east side, just sitting. One of the Q.P. males is in the brush nearby, doing

the same.

1:33. These two have been there ever since 1:04, moving only to look around, or scratch or preen. At this time, though, the spell is broken, for the lone ♂ is running up and down outside the fence.

The red ♂ sun to peck repeatedly at some plant - looks like Crocallis americana; later he was seen to swallow what looked like young grass shoots.

1:42 R ♂ squatting down; R♀ feeding beside him; Y♀ not far off, also feeding, paying no apparent attention to the lone ♂ outside

1:45 both of the Rs squatted down in the sun, half hidden in the long grass.

2:12. Still loafing, as is the lone ♂ outside

2:35. The 2 ♂s were standing within a foot of each other, one drowsing, the other preening. I was just about to write that there were no hostilities

when one (don't know which) gave a little run at the other, the latter slipping out of the way (I'll bet it was the Rooster chasing the Y♂)

4:04 Caught what I think is the Cove ♂ in trap II a just outside the fence on the north side.

No.	Sex	wt.	Trap	Color of band	Remarks
✓ 439329	♂	185.8	II a	yellow, left.	Released same place. Note the lightness one more, as compared with 70.

6:30 P.M. Early dusk. There are a lot of ♂'s around on the outside tonight for some reason; says three at least. Don't know whether they are bachelors or not.

The red pair came out and fed on the S.F.P. as usual, in spite of considerable noise made by us inside the observatory ten feet away — noises of rustling papers, shutting doors, etc., occasioned by our packing up our belongings. The window screens effectually shut out

any glimpse of us from the outside where the quail are, unless we come nearer than a foot from the screen. Even when we do this the birds only start a little and cock their heads at us, without running entirely away, showing that even under these circumstances they can not make out our actual outlines. When we simply make noises they pay ~~no~~ attention other than to cock their heads for a second before resuming their feeding.

7:07 rather deep chuck. First the red ♂ flew up into the oaks, then the ♀, following behind him, flew up into the oaks, but at a distance of about 6 ft. from the r. ♂. While we were still registering surprise at this unwonted pairing of the couple we saw, in the half light, the red ♂ fly across a little gap, from his branch to the branch where the ♀ was!

Probably neither of these birds drank tonight. We did not watch every minute of the time, but

we feel pretty sure of this nevertheless. The yellow pr. did not come to the F.F.P. at all to feed this evening, alone drink, being apparently engrossed with the three bachelors (?) at the far east side of the P.P. Evidently drinking is not essential at this time of year.

7:10 Quail on the outside of the P.P. are now fluttering up too. There is much "squilling" and one heard an excited call which seemed to be a cross between the ordinary cu ca cow and the pit pit call:

cu ca pit cu ca pit cu ca pit cu ca pit
cu ca cow, cu ca cow, cu ca cow,
cu ca cow

changing into the regular cuca cow after awhile, as indicated above. There was a considerable variation in pitch and rapidity of delivery among different birds, noticeable this evening.

7:12 No more sounds – the quail are all gone to bed.

Fought to mention that the newly

horizontal, broken white bands on the sides of breast, and on the flanks seems as an effectual camouflage when the birds are standing in the brush or tall grass, ~~and these outlines~~ particularly of the outline of this bodies are partly obscured by vegetation. In such cases the white bands, at a distance of only 60 ft and seen through X12s, give the grayish mass of the body exactly the appearance of part of a rold fungus encrusted log half buried in the grass — the white horizontal lines resembling the white fungi. This resemblance was so perfect in one case recently that G.L.S., Sr. mistook a resting quail whose head was hidden behind a small fan part of such a stump. Other times, when the bird is in grass, the markings resemble bent-over dry grass stems.

April 26, 1932.

12 noon. All four of the quail are loafing close together. One of the ♂s, if not more, was standing with

his head tucked under his left scapulars, in what must be the attitude maintained during sleep. When I scratched on the window pane he jerked his head out and looked around, then put it back under the scapulars again since I had ceased the noise. Today was cloudy and rainy (see under Weather Notes). A moment later when the sun came out all four began to feed in the near vicinity of the house. Don't know whether the appearance of the sun had any thing to do with this or not.

12:02 Suddenly I heard the same low alarm note that I had heard once on a previous day (see notes about 2-3 days back), and saw all four birds run into the brush. The note is similar to the mo-mo note but louder, and possibly slightly different.

Gordon Tree tells me that hunters declare that quail tend to bunch together during rainy weather. This makes shooting difficult because when one flies they all fly in a

bunch, giving the hunter time for only about one shot. On clear days, on the contrary, the birds are scattered through the brush, feeding, and rise in scattered groups, giving the hunter a chance to bag more of them.

1:05 The ♂♂ went up to the sawhorse which I had placed inside the pen about a week ago and perched on the lowest brace for a moment or two. This is the first time I have seen it used, despite the fact that it is the only eminence inside the Q.I. except the breeding and baccharis used for roosting.

First appearance of sentinel duty.

1:25 Birds still dozing

1:50 All have feeding together at the edge of the brush; no hostility between ♂♂ was observed even though they fed side by side. One of the ♂♂ swallowed a piece of grass or other green material

2:22 The ♀♀ definitely followed the ♂♂ out from the brush to the I.F.P. and fed side by side with him, following his wanderings just as the P. pr. follow each others. This

certainly indicates that the yellows are at last getting together. Correlated with this change is the fact that at no time today did I see the ♂♂ run up and down by the south side cure!

2:25 A fine example of the social organization of quail took place. The ♀♀ were feeding in the D. F.P. and the ♂♂ had just arrived on its edge and were 20 ft from the ♀♀. Suddenly the ♂♂ gave a prolonged low clucking note, resembling in tone the mo-mo note but having more of a cluck like that of a domestic fowl. All the time that he was giving it he never moved a muscle, but held a half crouching position. Simultaneously with the first note of this call the three other birds froze in what ever pose they happened to be in. The ♀ was looking back over her shoulder when she froze, and she kept this position, the ♂♂ was partly crouched down, and he held his position, opposite for the ♀♀ who had her head turned to the right. For a full fine

minutes all four birds stood thus. ~~All~~ None made a sound save the ♂, who kept up his low note continuously the whole time; sometimes the note was so low that I could barely hear it at 15 ft distance (the R. pr. was 20 ft away from the ♂), and sometimes I could not hear it at all, but was pretty sure it was being given because the slight quiver of the birds body, which had marked each audible note, still continued at the same intervals. I don't know what the cause of the alarm was. Possibly it was Gordon, who was working about 100 ft away in the garden. At last the ♂ commenced to feed, pausing one or twice to turn into a statue again; gradually the rest began to feed also. The show was over.

The ♂ and one of the thrashers which was also feeding in the D.F.P. showed no disposition to quarrel on this occasion. They feed side by side for a moment, the quail passing so close that the thrashers

tail brushed his side. The thrasher was picking a hole in the ground at the time and the quail brushed right in front of him and picked up a bit of grain from the hole. The thrasher had to back up to avoid being pushed aside by the quail, in fact, at which he relinquished his hole and moved away a foot or so and began to dig another. At this moment I blew my nose, from inside the shack, and observed the effect on the quail. The Yp. gave a little start and ran 3 ft. to the left, where they resumed their feeding immediately (the r-pr. was not around then).

Birds caught in traps today:

	No.	Sex	Trap.	Wt.	Hour.	Colored band	Remarks
repeat →	439327	♂	1	20.65	3:39 P.M.	red and yellow on left.	Released at same place. Compare weight. this time with at time of banding
	439330	♂	1	18.6	5:27 P.M.	Blue on left.	Released same place.

A number of outside quail went to roost in various trees on the e. side of the Q.D. tonight. I heard them going to roost (also the Q.D. birds) at ~~at~~ between 7:00 and 7:05. The Q.D. birds roosted in the dead Baccharis branches at the extreme n.e. corner of the Q.D. tonight, for some reason; this is not nearly as good cover as the oaks. Perhaps the quail which were roosting in the trees just opposite that corner may have had something to do with it.

Today, when driving up I saw about six quail crossing the road at the first turn above the main gate. This is pretty thickly wooded country. Gordon Rice told me that last night between 6:30 and 6:45 P.M. he saw 8 quail crossing the road in a bunch at Berkeley Terrace (Berkeley, Calif); they were divided up into pairs in every case. Evidently quail are still going around in bunches at this time of year although they have paired to a

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large extent, E. J. S., Sr. has been getting quail in his traps in pairs, at Strawberry Canyon, Berkeley, for more than a week. April 22 he captured two of these pairs and tried to keep them for me but had to release them April 24 because I was still away. Between April 23 Sat., 4 P.M. and Sunday April 24, 10 A.M. - one of the ♀s which we had captured, laid an egg on the floor of the cage.

April 27 4:50 A.M. Heard first wit-wits this morning ("wit" is more close to it than "pit", I think). There was considerable cacacoaxing, too, some 15 minutes (?) later. The birds that went to sleep in the trees outside the G.G. are responsible for this noise, I think.

9:15 The ♀♂ and their pr. came over to the G.F.P. and fed in a little bevel, but the ♀ was busy running up and down the n. fence where there were several eager ♂s on the outside, and she did not come with the other three to eat. The 2 ♂s fed side by side, practically if not quite touching, but

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there were no hostilities. The ♂♂ picked up quite a number of pieces of shell but no grit; the red pr. seemingly took none of either. None of the birds touched the kernels of whole corn which I threw out for them last night.

m Exp.

No.	Sex, Wt.	Hour.	Color of Bird	Trap	Remarks
Repeat → 439329	♂ 182.7	11:23 Am	yellow on left	2a	Released same place Repeat
A 409281	♂ 194.3	" " "	red, white on left	2a	Released Same place.

These must be unmated ♂♂, the way they persistently hang around the Q. I cut the top knots (feathers) straight across on both of these

12:03 Ypr came out to s. side fence and walked around together, looking, in the open in spite of the fact that Gordon Prue was pounding on fence posts at the back of the cabin 60 ft away. He was pretty well screened by some upright boards which I had placed at the fence

12:05 Now they are feeding right in front of the window, 12 ft from me; Gordon is pounding, and I am calling, and the gasoline stove is hissing!

Corresp

12:10 Still feeding. Both birds seem to prefer small seeds to the large corn kernels which I had thrown out; they search for and pick up all sorts of small fragments of corn (?) which still remain from the scratch feed which I threw out somedays ago, and ignore the big corn kernels. Once I did see the ♂ repeatedly pick up a rather small corn kernel and shift it about in his bill, drop it, pick it up again, etc, but he finally discarded it altogether and tried no more of them. I think both birds still find a few unsprouted rape, sour clover, and bur clover, seeds from the I. of P.

The birds' feet and bills become caked with mud in this weather, which must be an annoyance. Once I saw the ♂ wipe his bill, both sides, on a patch of young rape plants, and once he scratched his head, which may have helped remove the mud also. Couldn't tell very well.

2:42. Y pr. standing side by side at S. E corner, feathers puffed out, heads hunched down between shoulders, both blinking their eyes and dozing. Red pr. did come about 12 ft away, but disappeared again shortly.

3:05 The red pr. came out to feed, and the Y pr., seeing this, started from 20 ft away and followed to — thus we have an instance either of imitation or gregarious-ness. In the case of the Y pr. the ♀ started first and was followed by the ♂. They fed in the S. F. P., disregarding the corn kernels in every case. Several times I saw a ♂ scratch a little hole (3/4" x 1 1/2", about) and pull out little fine white sprouts — I don't know whether they were rape sprouts or grass sprouts but think the latter. In any case they were swallowed immediately. The yellow pr. both ate several breakfuls each of young rape plants. The mo-mo call

Corn exp

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becomes somewhat querulous and harsh at times, and when it does so it shades into the low, continuously repeated alarm note that we recorded yesterday. Indeed it became this, once or twice, today but the other three birds did not freeze or did so in one case only for a few seconds. Apparently quail calls do not have specific meaning, at least this one doesn't — and it depends upon the external circumstances and perhaps the birds' internal states, as to what the reaction will be in any particular case.

6:29. A lone ♂ trying to get in at s.e. corner, while the YF is trying equally hard to get out at the same place; perhaps she pushes him to the YM (the r. F under such circumstance never pays any attention to such squabbles). Meanwhile the Y♂ keeps running along just opposite the intruder and makes sudden little dashes with his head lowered, ending in a little peck when he gets directly opposite, the intruder

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pecking at the ♂ is much the same way although with somewhat less vehemence. The ♀ is continually getting square in the way of the ♂, in her efforts to get out; sometimes she rushes right between him and the wire at the very moment that he is trying to peck at his adversary; in such cases he simply tries to edge around her & retreated doesn't peck her at all.

6:50 All four out feeding on J.F.P.; a lone ♂ running about on top the wire over their heads, calling cuca cow occasionally and wit-wit-wits most of the time. Presently the intruder goes to the S. side again dropping to the ground and then running back and forth. The ♀ stops her feeding and runs over there; the ♂ follows after, but he doesn't want to go. He crowed turn and run part way back to the J.F.P., stop, pick up food in the grass, then turn and go back to his mate again; this happened several times. Finally the ♀, also getting hungry I suppose, went to the J.F.P.

[illegible]

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where the red pr. had been feeding all the time; the Y♂ followed also one of the several long ♂'s again.

Now, while I had her only ten feet from me, the Y♀ on at least 15 occasions came next to a cuca cow which differed very little from that of the long ♂'s outside. More correctly, I should say that when it was given in full it differed very little; most of the time it was chopped off, so to speak, as though she were too busy eating. When given in full it was cu ca cow, but most of the time it was cu cá (loud but not so loud as a ♂) uit uit (cow).

I think I could distinguish the call of the (this particular) ♀, from that of the ♂'s, though, hers was not quite so loud, was given with less emphasis and pause between the notes, and did not have the ringing quality of the call of the ♂'s. Whenever she gave this call the Y♂ would

quie, aspirated cut-out, or a squill, squill, the latter being delivered with great vehemence and a jerking of the head (up, I think) on the syllable. As, giving the ca ca call often precedes it with a few preliminary ca's; close up it sometimes sounds like rúk, rúk, rúk; rúk-kir-kúk, preliminary rúk-kir-kúk, the accent being on the ~~two~~ 1st and 3d syllables instead of upon the second — however, there seems to be a great deal of individual variation.

7:07 One of the Fs (I think) made a try at roosting, but aimed at a point in the ~~hea~~ higher than the top of the enclosure, when she came to the top wires she fluttered about, then dropped to the ground again.

7:08 Same one (I think) tried it again, again aiming too high; at length she flew into one of the Amandas inside the enclosure, however. The rest followed immediately after, and by 7:15 even the last

cut-outs and shutings about had closed. The outside quail went to roost at the same time, in the trees at the e. side of the Q.D.; they roost at a height of about 20 feet things instead of the 5-6 1/2 that the Q.D. quail are compelled to be satisfied with.

April 28 5:10 P.M. Was awakened by the whit whit of the birds; they were feeding in the D.F.P.

5:50 - Caught the outside red pair; they were together in one trap compartment.

	No	Sex	Wt.	Trap	Hour	Color Band	Remarks
Repeats - a mated pr.	439326	♂	183.5	2a	5:50	red, left	release some place
	439325	♀	188.5	"	"	"	"

This pair (Oniffer) is the same that I saw early in the morning, walking about on the s. side of the Q.D. feeding and trying to get in; both birds flew from the s.w. corner (the ♀ following the ♂) past the cabin (within 15 ft of it), and down to the n.w. corner, which is where trap 2a is.

April 30. Only here for a short time

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today, and spent little time watching. Caught:

Recap → 439327 ♂ Wt. 2a, red, yellow, left. Released same place

not taken; don't know how long he was in the trap.

May 2. Cold, windy, drizzly weather. My Q.Q. birds are so secretive that I can't find them at all; not a sound is to be heard, either, except once, when I heard some low wo-mos from the east side, even then I saw nothing. There seem to be no lone ♂s on the outside; at least they are making no noise and they are not running up and down.

One can still hear cu cacows from near and far today, but now, for the first time, I heard, at 12 m., another cry, the "quar" call of the (um!) (1934) mated ♂ in possession of territory. The sound came from the thick brush just s. of the experimental feed plots, near trap 1. It was given fairly continuously for a half-hour or

Mistake

so, when I left. When I returned at 3:30 P.M. it was cold, windy and wet and I did not hear the quail call at all, although I did hear some cuca coos from various directions.

Quail are evidently scattering out. On the road south from the boat house, where it passes through some wooded, fairly, densely grown up country, I saw again of quail. I have never seen quail in that section before, and, indeed, had definitely decided against locating the Q.I. over there last October just because I never had seen any quail there; it appeared (and still does) that the brush was too thick and provided quite too few open spaces to be attractive to quail. I heard some quail from somewhere at the bottom, or on the east side of, the densely tree and vine choked, steeply sided Los Ingenos Canyon when I was sitting on the east side of it, watching for red tails on O'Neill's land, April 28.

May 3, 1932. Q.J. Not only are these Q.J. birds the most secretive that I have ever seen, but the grass and shrubs have now got so tall and so luxuriant that I can't see the birds on the few occasions when they do come forth; at such times the grass is way above their heads, and I can make them out only for a moment at a time. For about an hour and a half (since 5 p.m.), I have been trying more or less constantly to locate the birds and have only been able to see one or two at a time, these two being the ♀ pair. They were for the most part just standing, but a times they ate a lot of green stuff which was leaves of grass or of some other herbaceous plant; couldn't make out what, though. At about 6 p.m. they began to feed more continually, and presently I ~~saw~~ noted the RG, feeding with the ♀ pr. After a while they came

out into the 9.7P. to feed. they picked up very minute objects with great rapidity. What these objects were I don't know, but I do know they were not leaves or grass; perhaps they were some more of those little fine white sprouts — part of the time the birds (esp. the ♂) watched before picking them up.

There were several inmates (?) 1's around on the outside, although (at this time) none of the three feeding birds paid any attention to them.

~~Sever~~ One the ♀ crouched and gave the low continuous alarm note while the 2 ♂♂ froze (for full description see notes), then, in about 3 seconds, he began feeding again and the others followed suit. He did this again later but in neither case could I see any cause for alarm; certainly Gordon was not the cause. ♀ was one like

that it fidgety and starting at nothing. Incidentally, Gordon made a trip to the cabin (later wolf) watched the birds, and went away dragging a big squeaking bobcat tackle and a mass of moss without frightening the birds away from the S.F.P. This was because they could only hear, and not see him.

At about 7 P.M. things became more lively, at least two ♂s were trying to get in at the ~~as~~ and this time ~~all~~ the Y per and the RQ all three, clustered at the gate trying, apparently to get to the waters (the Y♂ did not seem to be fighting him, either); one of these outside ♂s had a yellow band; another seemed to have a red band, also I saw one ♀ with them later, so this must have been the outside RQ, with his mate (

couldn't see the bird, if any, on the ♀, for she was ♂, running around on top of the cage.

At about 7:10 they all began to fly up to roost, the outside birds going considerably higher than the Q. G. birds, about 20 feet, I should say. By 7:17 all was at last quiet.

I did not, at any time today, see the R ♂! What does this mean.

None of the birds came to the water pan to drink.

(5?) None of the birds ate any of the corn kernels, which are still lying in here I threw them.

in up → May 4 - 4:35 A.M. (dep dusk) Heard a ca ca cow, then some squeals from outside the pen. Then the quiet note from down near trap 2. Two birds are making it

A continuous series of mo-mos, resembling the alarm series given by the Q. G. birds, only slightly louder than the alarm notes; every now and then some low whit, whit

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notes are interjected.

4:50 Mourning dove – The ca-ca-coos round about outside the Q.D. increase in number. There is a ♂ quail running about on top the pen, already.

Since 4:35 (when I awoke) two horned owls have been hooting regularly, intersperse their calls blending at times with those of the quail.

4:59 I think that a majority of quail outside the Q.D., as well as those inside, are as yet up in their roost trees, even though the mourning series continues.

5:05 Not a sound from any quail anywhere, although I still haven't heard any of the Q.D. birds, or others, fly down, nor have I seen them. If horned owls are still hooting although it is plain jour (the sun being represented only by a lightening of the sky, however), the thrashers have been out, flying around, and feeding unusually at the J.F.P., since about 4:58, but no quail.

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5:21 A bright gray-orange glow in the east; chorus still hooting, occasionally; not a sound from the quail.

5:28 – There is a lone ♂ with a red band on the antenna of the fence; he has been there (n.w. cor) for a half hour, and from the sounds the ♀.♀. quail must be there too – I simply didn't hear them when they flew down from the branches.

Why this red ♂ is this ???? There is, in addition to the alone red ♂ an unmarked ♀ and a red + yellow ♂, all feeding at the n.w. corner. One of the males chased the other for several feet.

5:54 – We have heard no quail calls since about 5:15

6:08 – Ca ca coming from several directions at once

6:12 – more quawking – from the bird down below trap 2.

This "quaw" note is simply the cá of cacá cow, the other two notes having been dropped out.

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6 A.M. (about) – I baited traps 2a and 2a, (and where the long ♂s are accustomed to run) and by 6:20 had caught one:

439322 ♂, red on left – It is the Q.D. R♂! Goddamn. (see page 138

6:35 a ♂ is caring (= quarring) from right by the Q.D., seemingly from the oak (no!); I heard a low cuckoo from inside the Q.D., seemingly from the a ♀ (the Y♀??).

7:03 – There has certainly been no visiting of the water pan this morning as yet. The quail on the outside seem to have been here all the time, too, judging by their calls, and indicate, ~~clearly~~ that they have not taken time off to go for a drink.

7:30 Two ♂s, at least, are still rushing back and forth frantically outside the Q.D. (n.w. cor. and n. side; also n.e. cor.) one of these is an unmanked bird, ~~the~~ other is:

one ~~of the two~~ ♂s whose top knot (kept (of a sort)) → clipped off (see antea), but he has no

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colored band, although the Biol. Surv. band is visible. Can't possibly be that he has removed the band (it certainly is not on him), as did I fail to put one on (look this up in the records). There was an unmarked ♀ with them for a while.

Almost every time the ♂s mentioned just above come within two or three feet of each other, one goes for the other. They, one is always the aggressor and the other always the retreating bird. Sometimes they both fly up on top the Q.J. and run around up there, and chase each other. Just now saw a splendid battle between the two while they were up there. Both were running back & forth on top (s.w. cor.) and whenever they came within three or four feet one would run at the other with lowered head, and chase him following him wherever may he turned, for ten feet or so, in a more

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determined manner than I have seen any quail show before. After about 10 feet of pursuit the aggressor would stop and run up and down with his head low, peering through at the G. T. birds below. Evidently anger cools, his quail when the vanquished bird has retreated for 10 feet or so.

On One two occasions the retreating bird turned and faced his assailant, and they jumped at each other, pecking each at the face of the other, breast bumping against breast, just as domestic roosters do. The beak seemed the only weapon used, and the wings were held closed. Sometimes, while thus engaged, one would come down squarely upon the back of the other, which looked funny (peculiar) and [redacted] resembles the position taken during copulation (perhaps the birds get their instincts mixed in their excitement momentarily?) One of the birds always succeeded in driving the other away, and after

having done so, would sometimes prance up and down with little quick steps, his head bent low all the time, just as a rooster does.

11 A.M. Caught what I think is probably the "lone unmarked" ♂ referred to this morning. Given the following marks:

No.	Sex	Wt.	Primaries	Wings	Color Band
A409283	♂	192.5	11 A.M.	2a	Red, blue, left. Crown top least slightly cut.

This bird has a large gold scale extending from the left side of the breast posteriorly to the tibio-tarsal joint and ventrally to the mid ventral line; it is equal in area to a 50¢ piece, or a little bit larger, although not the same shape. When this gash was made the bird evidently lost a lot of feathers on the side of the breast immediately anterior to the gash, for new ones are now coming in in a triangular patch about 1" long by 1/2" at the widest place

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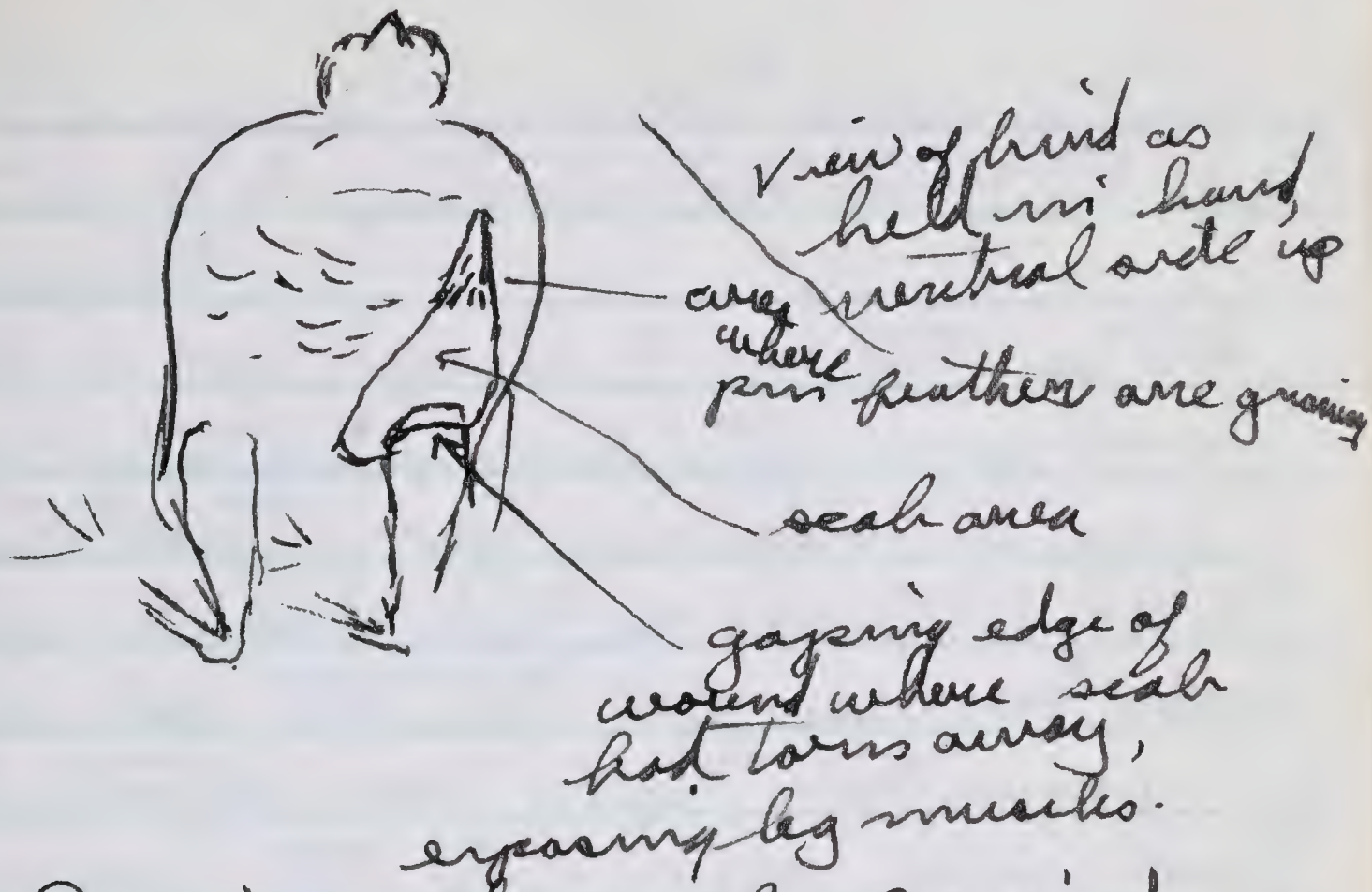


Due evidently, to the bird's struggles in the trap, part of the healing wound had re-opened, at the place shown in the diagram above; no bleeding was apparent, however. The scab was a blackened mass of down and blood clot; it was healing well, and will probably continue to do so. The bird must have struck a fence wire - the position and shape of the wound, with the exposed "knee" (thio-tarsal joint) running the hardest part of the blow exactly fits this hypothesis.

He doesn't seem to have lost weight, at least!

We wonder I couldn't see anything of the RO yesterday or today. I did ~~caught~~ see a red headed ♂ outside of the pen yesterday and this morning but didn't know whether he was the outside RO or the Q.D. red ♂. The fact that the RO seemed much disturbed, and kept following around the Q.D. near him, and the fact that he didn't pay any mate, nuts, hay, whereas the outside red ♂ did, led me to suspect that it might be the missing Q.D. bird. Accordingly I baited and set the traps by the Q.D. this morning, and caught him (see p. 133):

Escaped RO 439322 – Wt. 158.9 Hour 11/7 m. Released back in the Q.D.

He certainly is fight; must have spent all his time trying to get back to his mate, instead of eating.

I found the plot where he may have got out – two branches which pass

into the P.D. from trees outside
hopped at the wire surrounding
them until small holes had been
made

6 P.M. I'll be damned if I
didn't see the R.T. over in the S.E.
corner, with a red banded ♂ trying
to get in; it must be his hybrid,
and yet, how could he have
got out again? I didn't see the Ypr
at all.

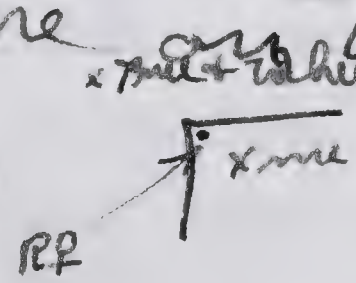
7:07 Silence all afternoon (a
cold, windy, dismal, foggy afternoon
until now). Heard a cucacow
given about 6 times (3 and then 3
more) and immediately there
was an answering call from
where I think the R.T. is.

7:15 - Went into the P.D. to
confirm my suspicions. They
were confirmed, although. Only
one bird is inside, the R.T.; all
the rest have escaped.

May 5. Located the holes from which
they had escaped the second time -
or maybe both times - a single
small opening where one strand

of mine had parted. Most assuredly quail take advantage of their opportunities! The pheasants showed much less adaptability in this respect; one had no trouble keeping them in.

The RQ is still around, on the outside, trying to get in. I caught the RQ and placed her in the central compartment of trap 2, which I moved up by the G.D. in trying to catch her. I witnessed one more illustration of the secretiveness of quail. After chasing her one or three minutes without success I scared her over into the N.W. corner of the G.D. When I went over there to pick her up I could find her nowhere. Gordon, me and Wheeler were standing just opposite me on the outside of the G.D.



yet none of us could see her, although her position is indicated in the above diagram. At this

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furniture Pine & Phelps came round, and we made the mounds of the Q.Q. twice, searing the threaders out into the open and nearly catching them several times. Still we didn't see the R♀ at all. Presently I located her, at the point where she must have been all this time (see previous page diagram), crouched down (standing on her feet, but down & humped over, with head low) motionless in the brush at the extreme corner of the fence.

At trap 1, which I set about 1 P.M., I caught a ♀, mind you, not a ♂. I placed her in the central compartment and in about 1½ hours caught a ♂ and a ♀, apparently both in the same compartment. The ♂ was a repeat as follows:

and together inside Q.Q.

No.	Sex	W.	Time	Trap	Color
439330	♂	181.8	7 P.M.	1	Blue, l.

repeat

the ♀ with hair was new:

#409284	♀	212.5	7 P.M.	1	Blue, l.

new ♀

The first ♀, still left in

the central compartment was later taken out, and marked as follows:

nwf	No	Sex	WT.	Time Trap. Color
	A409285	♀	211.2	7:25 / Released white, same blue one. place again

Have heard the "ca!" call only a few times today.

7:20 – Caught the RB by means of the R ♀ and released both inside the Q.9 again.

May ~~April~~ 8, 1932. Q.9. about 4 P.M. No more escapes, ~~thanks~~ God. Saw all four birds feeding together on the D.F.P. just now – the 2 blues together, and of course the reds inseparable almost as soon as they depart from a short heritage of the D.F.P. they disappear from sight in the long grass, so tall has it grown. For several minutes this afternoon I was aware of their presence in a particular section only because of a continual and localized sporadic pecking of the tall grass tops; at times I could make out one of the 9's

when he was standing with his neck extended to its fullest height, surveying his surroundings. Once, during one of these times I saw him jump up and pull of the flower of a Sarracenium bellum, which he swallowed just as I have seen quail swallow cutting flowers.

About 4:15 two garter snakes were crawling slowly, and with frequent long pauses (as snakes do) along the edge of the curve at the N.W. cor. I could hear the low wo-wo of quail not four feet from the place where the snakes were lying, but the note was their usual low conversational wo-wo, and there was no evidence that they were aware of the presence of the two reptiles (in fact, when the birds moved into view, a few minutes later, they were unconcernedly feeding). Judging from the complete lack of concern shown by ~~one of~~ the thrashers,

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one of which nearly stepped on the snakes a half dozen times (see under Coxcatoma redwinnin sonorae p.8), I suspect that the quail would have shown little fear even if they had seen the snakes (which perhaps they did).

6:15 Much the same story is being enacted by the blue ♂ as was earlier enacted by the Y ♂ (which I never recaptured). There are quail outside at the s.e. cor. of the Q.T. (whether Cone ♀s or pairs I can't make out), and he is spending a lot of time running back and forth, trying to get at them. The only difference between the blue pr. and the yellow pr. is that the blue pr. are evidently truly mated, whereas the Y pr. were not at first. The B ♀ is never far from the B ♂ (and both blues are usually at the other end of the Q.T. from the R pr.). Often the B ♀ runs up and down along the s. side with

the B♂, both birds keeping close together; their feeling of attraction for the outside birds must be gregariousness, they.

6:45 - (about). The B♀ left off their running back and forth and came to the 9.F.P. to feed for this running meal; the R. ♀ had already arrived there (from the opposite end of the 9.9) about 5 minutes previously. All at once the B♂ discovered a concentrated area of millet seed, which had thrown out in - hours or two previously and gave a low rapid wit - wit - wit - wit, scratching in the dirt meanwhile - the whole was just the reaction one sees from a domestic hen, when she has found something good to eat and is calling her young to come and get some of it. On the instant the B♀, who was about 2 ft distant, came running to his side, and began picking up the grains. A second later the R♂, who was nearly

ten feet away, ran in a beeline to the B.Q., until he was so close, that they rubbed feathers, and began to feed also. For nearly five minutes they fed side by side, with never a sign of hostility (the B.Q. meanwhile having wandered a few feet from them). The corn now remains, but I never saw a quail eat a bit of it and I think the thrashers made away with it all. The millet, on the other hand, is being eaten with frantic speed.

end of corn experiment

beginnement of millet experiment.

7:16 – all four quail began to move off from the I.F.P. to the S.E. corner (where the oaks are).

7:17, first bird went up.

7:19 all but one bird up (he probably went up also, unobserved).

The following are some notes which I forgot to add at the time of happening:

1. I heard the "war" (or quar) note several times about 4 P.M. from a bird down by the cornfield,

but heard no sounds from that direction. Later, about 5:15, heard the ♂ which gives the "war" call in the big oak (by the s.e. cor of the Q.9.) giving his call as usual there, for ten minutes, perhaps.

(2) The B♂ took a brief dust bath at the s.e. cor. about 4:30 P.M.

(3). While feeding tonight both ♂ and ♀ quail took small, repeated bites from the young mace plants in the 9.7P. (the plants were about 2" high). Also, the B♂ took several chunks out of a leaf of a scarlet runner bean plant over at the s.e. cor. sometime before this.

7:24 P.M. Quail are still going to roost around on the outside of the Q.9. There is "quibling" and fluttering, and even some flying in of birds from a distance

7:27 all quiet except for a bird chirp at the cornfield which says Wa (or quar) at intervals.

7:30 A squib call from inside (?)

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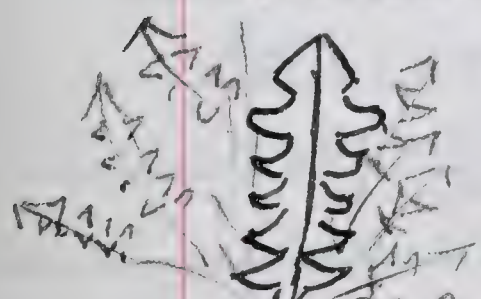
the P.P.

④ Oh yes, ~~there are~~ more notes — one that I should have put down several weeks ago; I have heard it night along, too. Whenever the P.P. quail are feeding within 15-20 feet of me (farther than this I can't hear it) I hear a more or less frequently uttered high-pitched slightly whizzy peep, peep; peep, peep, peep, It has little carrying power and perhaps is one of those notes which has had a better knowledge of their function we call conversational.

⑤ I saw the BB repeatedly pecking fragments from the leaf of what must be a composite similar to Lonchus or Taraxacum (agoseris plebeia, probably).



⑥ The birds did not go near the water pan at mourning time, or since 4 P.M., when I began to watch. I am pretty sure. Probably not (that they) drink. Left Porch about 11 A.M.

May 10, 1932

The BB. is running back and forth at the S.E. corner

trying to get out. At least they do it together, which is more than the Y pr used to do during most of the time. By their actions, and from making actual observations, I think that there are some outside quail in the general vicinity of this corner most of the time when the B pr. is running back and forth. The author's cva (or quail) at this corner of the Q.P. so frequently (see infra) does so from the big oak under which the blue pr. is running back and forth.

On May 8 I put a quail egg out into the S.F.P. to see if either of the thrashers would eat it. To date the egg is intact.

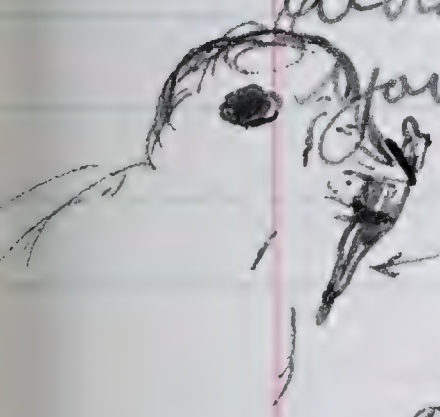
On May 6 E.L.S. Sr. owned for me, from the considerable number of quail in which he has been trapping in Strawberry Canyon (Berkeley), four birds. One mated pair (528290 ♂; A409014 ♀) and one unmated couple (from distant localities;

A 409980♂; 528209♀). Between May 6 and May 8 noon, when I got them away, ♀ (presumably) the mated ♀ A 409014 layed two eggs in the box where they were confined. I liberated all four of these birds at the place they were originally captured at 10 P.M. (with clark) May 8. At 9:30 A.M. G. & S. S.r. recaptured the {A 409014 ♀ / 528229 ♂} pair in the usual place, May 9! An egg was in the trap with the ♀; presumably this was the third egg since May 6.

2 P.M. The ♂ (also the ♂) keeps always at the s. side of the G. D. when she runs back and forth trying to get out. One can see the trap in which she was captured from there. Perhaps she has already begun to lay eggs in a nest near there; at least she regards that section with evident desire. She not infrequently makes a little ca cow, ca rate, just as the

Y♀ used to do, when she is excited and trying to get out. This note, as I have said before, is analagous to the ♂'s cuca cow. But is softer and of recognizably different tone.

2:07 For a moment the B♀ left her running up and down, ran over to the central part of the c. side, closely followed by the ♂ and began to feed. I saw her pick at and swallow what must have been a tender young grass shoot about 2" long.



Presently they were both back at the corner again.

2:15. They came out into the O.F.P. to feed for about 3 minutes, the ♀ leading, the B♂ following. After about 3 minutes the B♀ must have remembered her fence pacing activities, for she set out for the s. side fence at a little run, making, meanwhile, a continuous mo-mo

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noise like that of a ♂'s but higher pitched. The B♂ took three or four more perks, hesitated, looked up, perked a bit more, then followed after her. Now they are running up and down by the fence as before. I haven't seen any outside quail there at all; probably it is the attraction of their old territory, visible from there, which makes them uneasy.

6:30 (have been away since about 2:30). The outside ♂ who calls in the oak is calling steadily, but he is in a (introduced) ~~spring~~ bush now, directly S. of the feed patch. I timed the intervals between his calls as follows, in seconds. The last rays of the sun still illumine the trees as I write. (Started timing about 6:35.

Seconds — 20, 14, 13, 16, 20, 17, 29, 16, 15, 23, 16, 14, 15, 19, 13, 12, 127, 23, 12, 17, 15, 12, 24, 9, 10, 14, 13, 12, 11, 10, 18, 43, 41, 14, 19, 11, 12, 11, 12, 12, 17, 35, 13, 20, 15.

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About 7:10 he stopped, presumably to feed, since the Q.G. birds were busy doing this at the time.

All four Q.G. birds fed together tonight, at 7:22 they all moved slowly off together to the extreme edge of the G.F.G. at the time I could hear the cries & cuings of some of the outside quail going to roost. At 7:23 the Q.G. birds flew up almost simultaneously. The increased lengths of the days as summer approaches is reflected in the later and later bed-time hours.

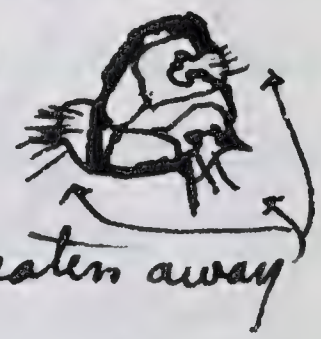
Again the Sonchus or Paraxanum plant was pecked at; I must go in and right and get some of this for a specimen. Some sage was also eaten as well as thing which I could not identify. Several times a quail jumped at fluttering bugs which had gone to seed, evidently trying for the newly formed seeds.

None of the birds drank tonight either.

Quail on the ~~roost~~ outside

could be heard, occasionally, and their presence was also inferred by the excitement of the blue jays. Indian man (gard) down along the s. side, for a short time; however, there seemed to be far fewer of them than in previous weeks. Yes all the Cope ♂s mated, and they realized that the Q.Q. hands are mated.

I discovered tonight that the s. runner beans which I planted on the s. side (where the quail run back and forth) are nearly extirpated, whereas those on the w. side and n. side are flourishing mightily. The few survivors on the s. side are torn and chewed down, some to the bases of the canes



so that they look like this:

(the above is a crude drawing of the same!) Just this afternoon I saw the BJ take several bites from a sc. runner bean plant over

at the s.e. corner. I also saw one of the birds eating burclover (leaves? probably.)

May 11. 4:05 Heard the first quail notes. The dawn was but a gray patch in the sky, horned larks were hooting, and it was still dusk. The quails continued, with other birds commencing also. It was the cornfield bird that began, then one by the n.e. cor. of the Q.I., outside began; then, down in the s.e. corner, where the Q.I. birds roost, came a third quail. It was at just the right height and must have been one of the Q.I. ♂s. (but not a third roost) All three continued for a half-hour or more. Their respective voice tones were recognizably different. Presently the Q.I. bird (?) ceased and soon after that I heard the oak tree ♂ turning up; his call came (of course) from the same general locality as that of the Q.I. ♂, but from along the top of the welcome, and the

tone and pitch were decidedly different.

At about 5 A.M. they all stopped unusually because it was now light enough to come down and feed.

10:35 - The blue jay is trying, spasmodically ~~to get out as usual~~. The ♀ gives her soft little cá cra, ca crá cra note quite often (this is the homologue of the ♂'s cucacow).

May 12. 3:30 The Bjy. came out to feed in the J.F.P. They ate leaves of maple repeatedly, also leaves of Melilotus indica clover. The red jay does not come to the J.F.P. nearly as often as does the Bjy.; instead the red birds stay down at the south end of the G.G., often in the tall grass, away from the house. Perhaps they are commencing to nest there. (later (1910) I think so).

Melilotus exp.

The millet is all gone. I threw out some about 1:30 p.m.

The quail egg which I put out is still intact.

About 2:30 I saw a quail (sex?) crossing the road a few

hundred feet S. from where the Los Trancos road joins it.

Yes, they have scattered out during nesting season, alright.

4:10 P.M. I can hear 3 quail giving the quay note down in the cornfield about 1/8 of a mile away.

4:25 B. ♂ feeding in the 9.7 P. again. Three or four flies are in constant attendance upon him. they keep flying about him and settling upon his upper and under tail coverts, and sometimes upon his back. With the x, 2s I can see that they are not Hippoboscids, they look like ordinary M. domestica. He every now and then makes quite little dabs at them with his bill, turning half way around and reaching back to his tail, to do it, but he doesn't seem to get any; often he digs himself

on the flanks, and fan of tail, at such times, but whether this is because of some mutation or merely because the motion of reaching back to the tail is so closely associated with preening at the first always evokes the second, I don't know. Every now and then he gives a nervous little run of 7 or 8 feet, but whether this represents an effort to leave the flies behind, or not I don't know.

The BQ not infrequently gives her little high pitched cacá, cacá cá, and this seems to excite the ♂ strongly, for very frequently when she does this he interrupts, actually, with a vehement squill! squill!

4:42. The oaktree ♂ began to give his quar call from over the brush at the south fence.

The R.pr. came out to feed about 4:30.

5:07 Two ♂s are quarring at the s. fence, the oaktree ♂ (presumably)

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and one other, only a hundred feet from him, apparently; this second one has a markedly husky tone of voice. The corn field ♂ is also quacking.

7:05 Both pns. feeding on the S. ¾ P.: the B♂ was running after the B♀, who was just going over the S. side fence, to run back and forth. In the middle of his journey he happened to pass the R♂, who was busily feeding and as he did so he made a little run at him, pecking several times at the shoulders of the other. The R♂ ran a few steps out of the way, not resisting, but he apparently moved about 18", after which he stopped short; his back still toward the aggressor. The B♂ did not press him further but turned and raced after his (B) mate.

7:08. The B♂ again gave a little run at the R♂, and again the R♂ ran a few steps and stopped; as before the B♂ ceased chasing him at this juncture even though no resistance had been offered

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7:25 All four went to roost within about 90 seconds of each other.

7:28 - heard a cuco coming out behind the cabin, and discovered a banded ♂ out in the garden, running about and feeding. He had a red and blue band on left leg. From his actions I should imagine he was a young ♂. He ran over to the S.E. corner of the Q.I. (where the big oak tree is, also the altitude water dish).

Repeat of above

Once again I failed to see the Q.I. birds take any water.

In spite of the fact that the 4 Q.I. quail fed all over the ground where the sunflower seed had been thrown they ate none of it. Indeed, they scratched the ground up vigorously all around there, hunting for seeds; and had to do a lot of scratching before finding anything to pick up, at that. In other

(2) on flower seed exp.

wards they were hard put to it to find any thing to eat on the area and yet they ignored the sun flower seeds entirely. Later, that night, a mouse (species?) came and took away a good many of the seeds — I infer this because I saw the mouse, for a second, at dusk, and the next morning found a little heap of empty sun-flower husks on the outside of the P.I. just about where I had seen him. Yes (1934)

May 13, 1932. I have just come down from a walk on top of the hill behind Buster McLellans house. The top of the hill is open pasture with the sides densely clothed with oaks, madrone, Calif. laurel, poison oak, etc. etc. like the head of a bald man, with luxuriant hair on the sides of his head. Everything is live and green and overwhelmingly luxuriant at this season; the grass is tall, and hasn't yet begun to brown, although it will do so

in a couple of weeks. Flowers simply fill the spaces between the grass stems — dozens of kinds, all in bloom. Poison oak and elderberry and other shrubs are in bloom — truly this is the height of the vegetative season.

Buster has cut some hay already, and it lies in windrows (?) drying; most of the grass is uncut however.

Quail were all through this region on top of the hill, having scattered out, I think (yes; 1931), from last winter's two coveys (1 by swimming pool, other by cornfield). Males were calling at many points and both ♂ and ♀s flushed from the grass at the edge of the road as I walked along. Certainly at the present season they must find conditions of life easy, and food abundant. However, in the depth of winter, with snow on the ground, it must be different. Then most of the weed seeds will have been either eaten or buried. In order to insure that

the quail had enough to eat during the winter months, their most difficult period, I should, if I owned the place, clear ~~out~~ extensive lanes through the brush which now covers everything but pasture land so thickly that it is nearly impossible to walk through it. These lanes ~~if they~~ would support a much greater plant than the pasture land — around the pasture land, in fact — and would furnish just that much more weed seed for the hard winter months. Also it would allow the pasturage of more stock on the land.

In this type of country, shelter from driving wind, sleet, etc. will always be abundant; we don't have to worry about this factor.

Of course mice, and sparrows will always be important competitors of quail because of the enormous quantities of seed which, in the aggregate, they consume. Of course the mice

might be poisoned, say, by making little hoppers or grainaries which only mice could enter, filled with poisoned barley — these hoppers being set out around in the fields, and filled up once a week.

7:30 P.M. Found two ♂s in my trap by the Q.9. — lone ♂s, doubtless:

	No.	Sex	Wt.	Trap	Hour	Color
Repeat	A409283	♂	178.5	2"	7:30 PM	Red, Blue
New	A409287	♂	174.3	2"	"	Blue, yellow, C.

May 15, 1932. 3 P.M. The sunflower seeds are all gone — but not because of the quail. Perhaps the thrashers got some of them, but I think the mice got the majority; at least the numerous empty, split, husks lying around strongly indicate this. Today I put out 1/2 lb. of whole barley — just like the bird they use for squirrel poison operations, only unpoisoned, of course.

x Sunflower exp.
permanent barley exp.

3:30 All four birds came out together to feed in the D.F.P. One

of the ♂s discovered the barley and began to pick it up, calling mamo (or pud pud pud) to bring the others. One of the ♀♀ (his mate) came running, the other two followed shortly afterward. At first they attacked it eagerly, but ~~I noticed~~ I noticed that for some reason they dropped more than half of what they picked up. (2/3 would be closer to it). Sometimes they would pick up a kernel and start to swallow it, shifting it about in their bills, and then, just as it was about to disappear out of sight, they would drop it; often this would happen three or four times, until finally the kernel would be either swallowed or rejected - but mostly rejected. Did I observe, however, that a considerable number (actually, but not relatively) of the kernels were swallowed; enough so that if they had been poisoned with thallium the results ought to have been fatal. After a few minutes the birds evidently began to

barley exp (12)

tire of their lack of success with the grain, for they began to move off, scratching in other places, and eating little bits of rose leaves. Finally they went back into the tall grass and disappeared. Just before they left one of the ♂s jumped several times at a Sanicula menziesii flower which was about a foot from the ground and correspondingly about 4" above his head. He tried three times and missed each time.

4 P.M. All four quail are running up and down in the S.E. corner, trying to get out. I am surprised at the ♀ pr. doing this. They stopped about 15 min. later, disappearing into the brush, probably to feed. I am now listening to 3 ♂s giving the cock (or quail) note. One out by the main road just W. of the foot path, one down by the "corn field" (in reality in the wooded culch just N. of the Q.D.), and one far away down in

the cornfield proper. They all topped about 4:30 P.M.

5:30 All four came out to the S.F.P. to feed. The same thing happened as before, regarding the barley, except that this time I failed to see a single barley kernel swallowed, all were dropped. A thrasher was feeding with them, and he dropped a number of kernels also, although he swallowed a fair quantity also.

6:50 Again they came out to feed; this time one of the Js ate quite a number of grains in succession without missing one; his mate missed most of hers (I didn't watch the other pair); they left in a moment.

6:55. Now it is the red pair, and particularly the R♀, who runs up and down at the S.E. corner, trying to get out; the B♂. is on the S.F.P. feeding. Several times recently the Reds have

shown this uneasiness at the s. feeme, which is surprising in view of their earlier indifference.

7:10 All out feeding again. The ♀s have the same difficulty with the barley; only about one out of six times do they swallow it; it is as if they couldn't get it down their throats; it actually disappears for a second at the back of the mouth, only to come out again onto the ground as if by an action of the tongue. They pick it up with evident good intentions, no hesitation at all, but the swallowing is not so easy.

At about 7:12 p.m. the red ♀ scratched a little hole in the I.F.P., ser feet from the wundus, and took a dust bath, fluffing out her feathers and shaking them, half turning onto her side. After she was finished and had started feeding again the ♂ picked and scratched in the same hole, and then he too took a living bath

wit.

7:23 – They all went to roost in the S.E. cor. oak tree – at least I think they all did, a moment before, they were all at the s. fence. One of the thrashers is still feeding in the J.L.P.

7:26 – no more sounds although it is still rather light – lighter than on some occasions when the quail have been still out feeding.

I should have mentioned some time ago that the ♀s are more timid than the ♂s. – this despite of what I have said about ♂s giving low warning calls which caused all the rest of the flock to freeze. When I sat at the cabin window, watching the feeding birds, it is the ♀s who scant away, with no necks craned in my direction and giving nervous little quit quits – not the ♂s. I find that I can move about inside the cabin and bring my head to within a foot of

the window screen without alarming the ♂'s, but it is usually ~~other~~ cured with the ♀'s; they see me if my head or body is less than 2½ feet from the screen and they often start up and run away, leaving their mates to follow or not depending upon how hungry they happen to be.

May 18. 9:30 A.M. the four Q.Q. birds are still trying to get out at the s.e. corner, at intervals. The cu ca cow is indeed a clucking call, at least under certain circumstances, although it may have other uses as well. Now that the grass within the Q.Q. has grown so tall that the birds are hidden in it, I notice the use of this call more than heretofore. For example, just now I frightened all four birds into flight as I walked across the feed patch. They came down in the tall grass in various places, not very

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much a learned. Immediately I heard a low piping cu cau co from one of the ♂s, uttered several times, and an answering, high pitched, characteristically feminine cu cá cá from nearby, uttered each time the ♂ gave his call. This I have noticed before also. The low, constantly uttered mo-mos are uttered too, but these seem to be given when the birds are already close together, for the purpose of keeping them from straying apart; the cucacow being reserved for an assembly call in the event that the birds become more widely scattered — it is of course a far louder call.

Saw one of the ♂s eating berries of my planted bush clover in the J. F. P., this morning.

3:30 (about). All four birds had just come out of the tall grass to the east edge of the J. F. P., and were feeding on maple leaves and the like. Presently the R♂, wandering

In the course of his feeding up behind a ♀, placed one foot upon her back, while she commenced to crouch down. I thought that at last I was going to witness the act of copulation but at the instant the ♂ put his foot upon her back the B♂, who was feeding about two feet away, made a little run at him, driving him about a foot from the ♀. Just as I was about to find out which ♀ this was one of the birds gave the low alarm note and like a flash they had all plunged out of sight into the long grass.

doubtless the B♀, see later.

4. P.M. The flower has grown up and covered the shell and gut which I put out some weeks ago. I don't know whether the birds took any of the gut or not; as for the shell, I only saw ♂ eating it. Accordingly, I put more out today.

Most of the barley put out the other day has been carried

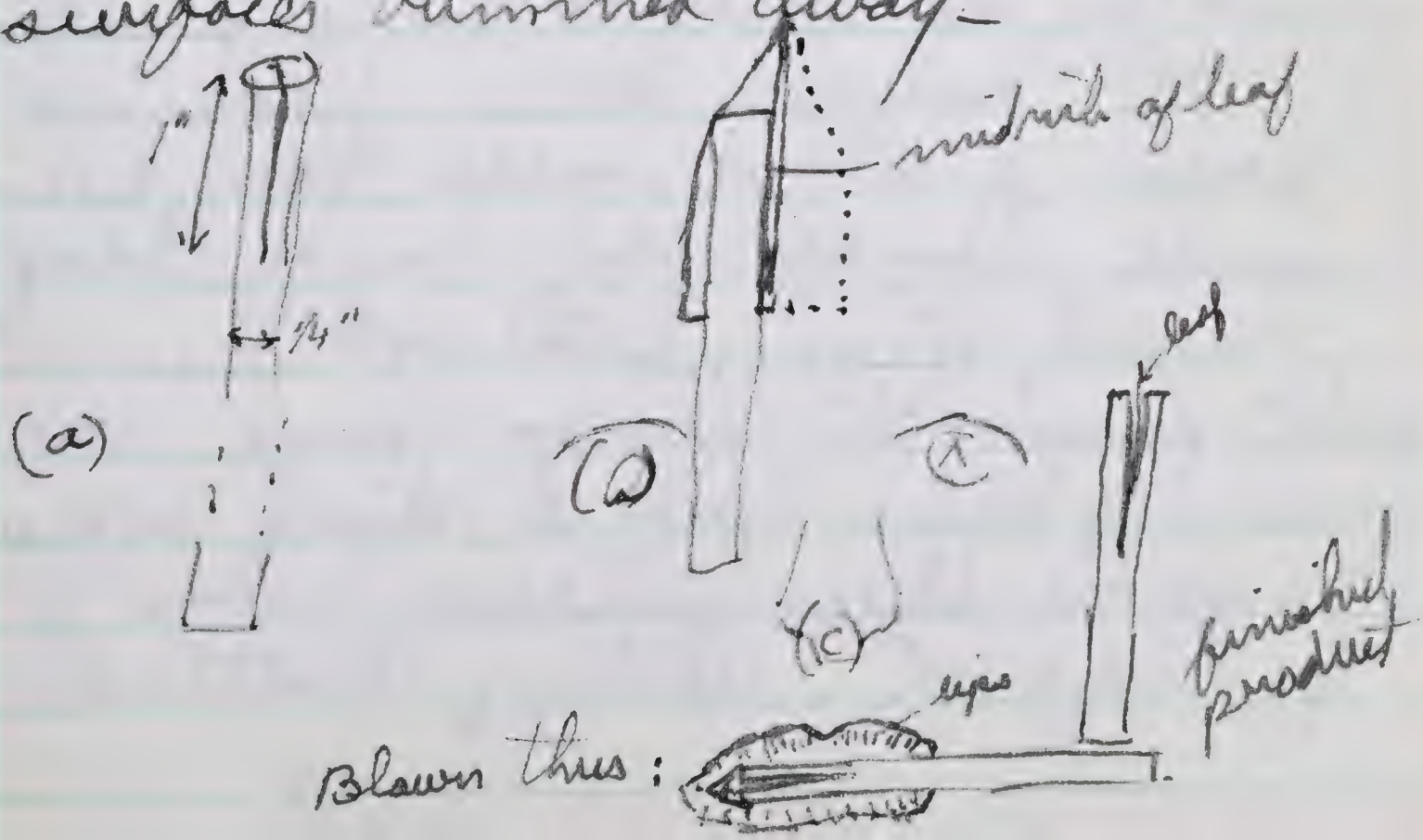
End of barley & gizzing of eggs.

Lophortyx c. californica.

away by the pocket mice and meadow mice which live under the cabin. Some of it still remains, however, and the quail are constantly paying no attention to it. At this hour (4 P.M.) I have put out a half pound of hemp in the usual place. The birds are not in sight at present.

7:04 – This afternoon I made a quail-caller after the directions given me by E.S. Cheyney's partner:

A split Calif. laurel twig, slightly smaller in diam. than a lead pencil, with a piece of leaf of the same tree thrust into the split like a reed, and the projecting surfaces trimmed away –



I went to the densely wooded (large trees and thick, 10 ft high, brush) west wall of Las Trigricos Canyon and sat down in the thick brush, and began to call. (Practice had not yet had opportunity to make perfect, but I could make the cu ca' cow, and rule the little variations of the clucking call fairly well, also the "gwas". Sat there for an hour or more, watching red tails on the opposite hill, and calling. Came upwards yards or more down the slope from the bottom of the canyon, thickly wooded, and then the other side rose up, having somewhat fewer trees, but being just about as densely covered with brush. It did not seem to be a very good place for quail, being much too thick, with few or no open spaces. However there were quite a few wild flowers (which means weeds) in small scattered patches. In spite of

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this I could occasionally hear at least two quail calling cucacow down at the bottom of the canyon, in the far distance (400 yds:) I kept calling, and it seemed that the nearer of the two answered, also he gradually drew nearer. After a while, with me still calling, he began to give the "quar" call, now only about 250 yds away, down the slope. I continued and so did he, gradually approaching me up the slope. In about 3/4 hour I heard a quar and then a subdued pit-pit-pit, from only 20 ft away, (barely audible) there he was, in the dense underbrush, standing on top of a wood rat's nest, craning his neck from side to side and pit-pitting his distrust. Evidently he saw enough to discourage his curiosity, unlike a less wary species of bird, for after a few moments I could hear him scampering away through the dry leaves, and

although I kept still and called for another twenty minutes I neither saw nor heard him again. Contrast this with the open approach of most birds to a screaming, and their excited flutter of tail etc. as they hop about in plain sight.

At 7:19 all four Q.9. Cinds. went to roost. This early roosting I attribute to the fact that it was a cloudy evening, the actual amount of light at 7:19 being about the same as that at 7:23 or so on a clear evening.

(exp. on.) The birds ate a little hemp, but not much. They crouched continually walk right over ground where it lay thickly, ignoring it entirely and searching instead for other more welcome bits, and green vegetation. I remarked, however, that several of the birds took quite a lot of the remaining barley, picking up six or seven seeds consecutively without

dropping them — as though they were coming to learn to accept the Conley Case Stoddard's experiments with Bobwhites and new types of food.

Again the birds did not drink — in spite of the fact that I had moved the drinking fountain out into the middle of the J.F.P. in plain sight where they were feeding. The water was slightly, but continually in motion, too, from the slow dripping of the ~~water~~ pipe, which should have caught their eyes if they had really wanted any.

I have noted few or no Lone Js around the Q.J. of late — whether this is because they have found water or because the Q.J. birds are mated, I don't know.

May 19 3:56 A.M. I heard ~~the first~~ quail call at this time — the hour — from near the Q.J. Almost instantly (within 2-3 seconds) several other quail birds

round about began to graze also.

About 9:30 a.m. I was watching the Q.Q. birds feeding in front of the window again. They ate some slight amount of hemp, and a greater amount of barley, as on the previous evening.

In this very limited type of environment I think that cattle, if not too numerous, are beneficial to the interests of the quail because they keep weeds and open places from being overgrown with brush with the resulting aide to weed growth. Of course in the nesting season the cattle might occasionally trample a nest but I think that this would be a rare accident, due to the fact that the quail (probably - needs checking) place their nests back in the brush clumps, a few feet from the edges, in places where the cattle do not graze. If it be found that there are significant losses to the quail from

the trampling of cattle, it could be recommended that between May 1 and June 15 (in this section), say, the cattle be turned out in the largely wooded sections instead of in the open grassy pastures. The season just indicated is about the only time when there is good pasturage in the wooded sections, so that these might well be utilized in this manner; the open pastures could be used later.

May 20, 1932. Cloudy alternating with sunlight; fitful showers; overcast at dusk. This showery weather seems to make the quail in the surrounding country more than usually noisy — at least they are so, whether the weather is the cause or not. The cucacow call is heard frequently, also the "quaks".

The four quail feed as usual this morning, eating much rape and other green stuff, little barley, and still less hemp.

hemp
barley

Lophortyx c. californica '80.

At 7:13 several quail just outside the Q.I.P., at the n.e. corner, flew into the trees to roost. The Q.I.P. birds fed on, however, until about 7:19 when they started to the oaks trees branches at the s.e. corner. In the case of both pairs the ♂s went to roost first, leaving their ♀s feeding, but in each case the ♀s, after about five seconds following the departure of her spouse, left off feeding, manifested some uneasiness by craning neck in direction of branches of oak, running back and forth in front of tall grass, bringing the Y.L.P.P., looking for an opening, and finally flew to the oaks also. I could not make out if each ♀ went to her own ♂ or not. There is usually some shifting around in the trees after the birds have flown up into them, and it may be caused by just such seeking

Lophortyx c. californica

out of mates.

Longest chuck at 1/2 of alfalfa seed sites dark.

May 21 – 4:55 A.M. The quaining began about the usual time (4 or 3:55), and, as noted earlier, it stopped at 4:55 in all sections, as though the birds were taking time off to eat. This inference was strengthened by the fact that the Q.D. birds were eating in the D.F.P. at that time, too.

Alfalfa exp

About 9:45 A.M. The blue pair came out and fed for a while; they ate the alfalfa seeds readily and continually. It is to be noted that these seeds are small.

May 22 Quail started up at 4:08 this morning.

About 10:45 A.M. I was sitting by the edge of the Los Trancas Canyon rd., and made myself a quail

caller. The east side of the road is densely grown up with brush, in fact this is the impenetrable thicket on the W. side of Los Trancos Cañyon mentioned a few days ago where I called up the ♂ from 300 yds away. The west side of the road is not quite so dense, and there is an open field on the hilltop adjacent. In about 10 minutes I brought up two ♂s, one from the brush-choked ~~east~~ west slope of the canyon, the other from the hill side on the west side of the road. The canyon bird was bolder than the bird I called up the other day; he finally flew up into a tree in order to see me better, and remained there, partially concealed by leaves and branches for some time. The hill slope bird did not see at all.

I have noted that when the quail call is given three often follows a few chip, chip notes like the low chip alarm notes that a flock of quail sometimes

make when you come upon them suddenly, but not the quit quit call), which are audible only if one is within about 75 ft. The effect upon the listener is one of incongruity, as though the birds' bold challenge were followed each time by faint notes of alarm.

Made a map of some of the nearby quail country, with location of calling males, also pairs.

May 23 Sat and called for about an hour and a quarter at the same place where I called last time (yesterday, or the day before?) but without bringing a single bird, although I heard several in the distance. Don't know the reason for this.

Arrived at the cabin about 7 P.M., while the G. J. birds were feeding in the J. F. P. just outside the window. They did not run away in spite of my noisy entrance (I had not guessed they were there);

they could not see me on account of the screen of boards etc, therefore they were not afraid. While they feed, all four together (is it coincident physiological urge or force of example which causes both pairs of birds to feed at the same time in the D.F.P.?), I was surprised to see the R♂ walk up behind the B♀ and start to climb onto her back (out of copulation); she uttered a little low note and instead of squatting down, took a step forward, still up on her feet. This had the effect of preventing the R♂ from climbing up, nor did he persist after this one time. The B♂ did not interfere during all this time. I have noticed this incipient copulatory act on the part of G.D.♂'s several times before but did not write it down (except once previously) because I was not sure that this was what it really was. Several

minutes later the B♂ wandered over to the B♀ and put one of his feet onto her back to climb up. This time — to her own mate — she did not refuse. Autoquatted down, with tail obliquely to one side and "let him" have his way with her. As far as I could see the act (first time I saw it with quail) resembled that of domestic fowl type — however, I couldn't see whether the ♂ held the ♀s head with his bill or not; in dom. fowl the rooster seizes the hen's comb, which helps him hang on, evidently. The act was much longer in duration than that of domestic fowl, too, about twice as long — in fact longer than the copulation of any other bird species that I have seen (Redtails, bulldurs); it must have lasted 5–7 seconds. The ludicrous part of the whole affair was that the R♂, who had been so

unsuccessful a short time previous, attracted, and stimulated by the sight, came up and stood directly behind them during the whole process, in position, as well as he could, he pushed the others out of the way, to step upon the ♀'s back. When the B♂s were through, though, he merely went on about his business which happened at the time to consist of feeding.

The four birds did a lot of scratching in the S.F.P., looking for seeds in the place where I have been throwing them out, but there are none left.

The R♂ took a drink - one sip only, at the water dish; the rest never went near it, at least between 7 and roosting time.

Roosting time, by the way, is still getting later as the days grow longer, the actual illumination at the time when

they fly up into the trees remaining about the same, tonight they all went up at 7:35. At least in one case the ♂ flew up first.

As I have noticed before, the cuca coo call gives by a ♂ and often invokes an immediate and excited squill! squill! squill! call from any ♂ that may be near by; I have seen this not only in the case of G.D. birds reacting (squill up) to outside birds, but also outside birds reacting thus to other outside birds. What the nature of the squill response is - angry challenging, away of an intruder? - I don't exactly know; it always seems vehement, though. Some quail, don't know what ~~sex~~ status (that is, lone ♂s or mated ♂s; all I can see ~~they~~ are ♂s), still go to roost adjacent to the G.D. each night. There are not so many of them and they don't spend much time trying to get in so perhaps it is only

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a sort of gregariousness that drains them here, one may be the bird that grians so much from the S. side of the feed patch [± symbol on the map].

May 24, 1932 — Dawn starts about 3:45

Here at this season — it is no more than a ~~[illegible]~~ grayness in which things are faintly visible at that time. The cranbirds and mocos begin to call at that time, but the quail don't commence for another 10-15 minutes. Quail (and other birds) get just about 8 hours sleep during the night, thus in temperate latitudes. I wonder about arctic and antarctic regions; maybe they doze during the day there. In the tropics they must spend ... ? Equal times all the year round, I guess.

I threw out about 5/6 of a 1/2 lb. bag of rape seed at 9:50 this morning in the usual place. All the alfalfa was gone.

About noon one pair (which?) was eating the rape seed in considerable quantity. That is to say

of 1st alfa exp.
ning of 1 exp.

Rape exp

Lophortyx c. californica

they ate it pretty steadily, but I didn't notice any of that quick eagerness which they showed over the clover seed which I gave them some time ago; instead they ate freely of more leaves ~~in the~~ as well as of the seed which I had scattered. Very likely this particular time of year is marked by a decided increase of, and liking for, green vegetation on the part of the birds, and it would not be surprising if they cared less for seeds at the same time.

I spent several hours calling with my quail-caller this afternoon! First I called at nest area no 3 (see map), which is where I brought up a quail last time (Los Trancos Road). After the bird had caught sight of me he uttered no more calls, but flew down from the fence post which he had mounted and ran up the road and out of sight, nor did I hear or see him again. Canny bird.

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I next called for an hour or so down at the junction of the Los Frances and the main road. I was well hidden under some fir trees, but nevertheless no quail came over to investigate — this in spite of the fact that there were three ♂s calling — both the quay and the cuca cow — at distances of 75 - 150 feet of me. I was surprised at their backwardness. It did seem as if they increased the frequency of their calls when I began to call, but that was all.

I next called for a half hour at the ~~s.e.~~ S.W. cor. of the feed patch, by nest area ± (see map). The ♂ was calling in the brush just out of sight when I began, and he kept right on calling, without seeming to pay any attention to me during the whole time that I called. There was an apparent response from one of the G.T. ♀s ~~[illegible]~~; at least

heard her cucácá frequently while I called.

~~The W.~~ Only one pair of the P.J. birds came at to feed ~~when~~ after I came back to the cabin at 7 P.M. The other pair may have been feeding there before and been scared away at my arrival. It was the Bpr. which was present. They ate the mape seed about as they did earlier in the day, ~~that~~ is not excessively, and with ~~lots~~ of mape leaves (and doubtless other greens) added to the menu. Neither bird drank before going to bed. They went up in the usual place in the oak branches at the S.E. corner. The red pr. I did not see, but I heard a commotion among the coffee berry bushes at the N.E. corner which must have been they. The Bpr. flew ~~up~~ at 7:34.

Just at roosting time a lone ♂ flew to the top of the P.J., crawled about, then flew down to the ground, circled the cabin

and appeared at the s. side of the
nest of a
Q.S. He had a clipped top-knot and
only an aluminum band, no
colored one — if I saw aught. He,
or some ♂, went to roost in the
trees at the n-e. corner of the
Q.S.; some (or one) other quail
went to roost in the oaks
at the s.e. corner.

May 25. Made a few observations on the
Q.S. birds in the late afternoon
as follows:

All 4 birds were feeding near
each other, as usual. Several times the
R♂ and the B♀ would be feeding
close together, but the B♂ did
not interfere. After a while,
however, when the R♂ was feeding
in this manner near the B♀,
he (the R♂) suddenly, coming
up behind her, made a motion
to climb onto her back.
Instantly the B♂, who had
been feeding about 2 ft
away made a dart at the
R♂, uttering that deep,
musical cup! cup! (this is

a poor rendering of it but know no better) which is so staccato and emphatic for all its musical quality. The Rd turned and ran off about two feet, which was as far as the Bd pursued him. The Bd had not crouched down at his approach, as she does for her real meat (see antea and also post hoc).

At an earlier time I made the statement that the ♀ is more wary than the ♂ (see antea) but during the last three days there has been a change in the Bpr. that is. Now it is the ♀ who feeds lustily and without interruption while the ♂ stays close by her but instead of feeding remains upright alert, motionless except for a continual watchful turning of the head. I suspect this change in behavior may be associated with the approach of the

Lagunitas c. California 1924

nesting cycle — this latter being indicated by copulation (see notes, also below). It was during one of these nightness intervals periods on the part of the B♂ that the R♀ again approached the B♀. The B♂ paid no visible attention while the two fed together; he remained stock still, two feet away. All at once the R♂ again tried to mount the B♀, and at that same instant the B♂, galvanized into action, danced at the R♂ just as before and quite the same results.

The R♀, it appears, is for some reason not physiologically ready to respond to her mate — perhaps because of the fright I gave her when I captured her about 3 weeks ago to use as a decoy for her escaped mate. The unfortunate R♂, then, is forced to look for his pleasures elsewhere.

Shortly after this the B♂ approached from behind the mates; they had

both been feeding together. As he came up she squatted down — thus indicating her responsiveness (I doubt if the act could take place without this mutual reacting of the two birds). The ♂ had hardly got onto her when he climbed off again, however, the act being incomplete. Something about his state must have been wrong this time. Just as and during the time that he mounted her, the ♂ utered a continuous low thin peep-peep-peep.

About 5 minutes later the ♂ copulated in regular style. He approached, with the concomitant squatting of the ♀ as before, also her low thin peeping. This time the act was prolonged (several seconds) and complete, just as unmissable it the other night. The ♂ grasped the head (feathers) of the ♀ a few millimeters behind her top knot. He ruffled

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during the act, had some musical throaty trip! trip! or dip! dip! noise ~~too~~ he had used when chasing away the ♂. His "dip!" note and her purring made a chorus of excited sounds during the whole of the act.

None of the four birds bathed ~~the~~ water.

All four went to roost as usual. This time a ♀ led to the tree in the case of at least one of the ♂s.

The birds have nearly destroyed the scarlet runner vines along the entire S. side of the G. D., at the S. W. corner and at the N. W. corner, but chiefly at the first two places, these being their more frequented hangouts.

One of the ♂s ate several pieces (chunks) out of a dock leaf, Rumex Occidentalis.

The birds went to roost tonight at 7:31 P.M. - a little earlier than usual.

May 27. Today was cold and foggy (see

Lophortyx c. californica

under weather notes); and the quail were not very active, at least during the time we saw them (we did not arrive until about 6 P.M.)

of last exp. timing

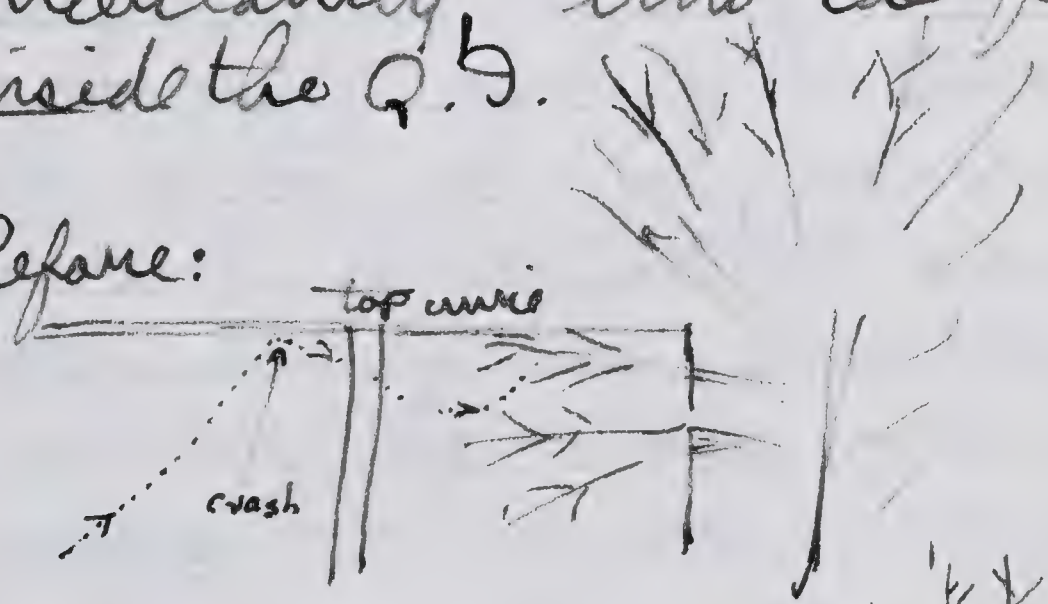
Threw out about 1/2 lb. of common vetch seed at 6 P.M. At about 6:30 the quail came out to feed and picked it up immediately. They ate of it steadily, showing more attraction to it than for any of the last few seeds put out; however they often wandered away to the adjacent rape plants and ate plentifully of the leaves of the latter. No squabbles, no copulation, no visits to the dripping fountain bought. The birds went to roost much earlier than usual tonight, evidently because it was darker (thick fog). At 7:14 the first went up, the rest following between then and 7:16. For ten days or more the birds, both pairs, have shown the existance of an association

vetch exp.

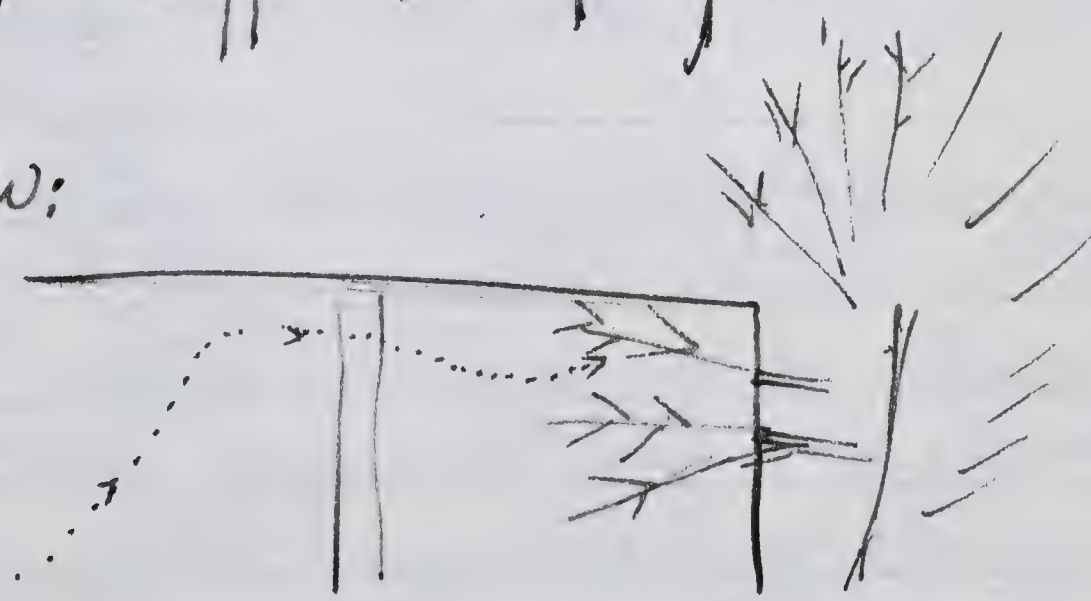
Lophanthus c. californica '98

between flying (aiming) at branches outside and above the Q.D., and getting their heads bumped on the top wire — that is, they no longer fly straight up at a limb 15 ft or more above the top of the Q.D. on the outside as they used to, but start upwards check themselves when about 2 ft from the wire top, and fly horizontally and some what unceremonialy into the foliage inside the Q.D.

Before:



Now:



There was a lane I which curled past the cabin just at

dusk, as usual, attracted by the P.D. lights.

Condor, 34, 233

At the Cooper Club meeting last night (May 26) Dr. Taylor of the Poultry Division, Univ. of Calif. (Strawberry Canyon) said that certain individual Calif. jays up there had killed 6 or 7 young chickens, and had also punctured eggs with their bills. Not all the jays, he thought, but certain ones, were responsible, and after these offenders were shot he had no more trouble. He actually saw the jays eating the pounded lifeless bodies of the chicks (which an hour earlier had been perfectly healthy.

Miss Mary Erickson, of the M.V.Z. related at length and with details her observations on Calif. jays killing and flying away with numbers of baby rabbits, newborn. This happened on several different days, with several broods of rabbits involved,

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in Strawberry Canyon. Jays are probably a menace to young quail, then. (later, but no!)

Quail are just hatching eggs at Berkeley, evidently, as some of them are, at least. A Mr. ??? told at the Cooper Club meeting that at 6:30 P.M. of May 25 a nest of (15?) quail eggs in his yard hatched.

May 28, 1932 6 P.M. when I began to write of a dark, cold, cloudy, drizzly day - also somewhat windy. This cold weather (or the darkness?) has had a noticeable effect upon the behavior of the quail. The G.S. birds stand about listlessly, silent (not even giving the little mo-mo's which keep the birds of a pair together) and with their feathers puffed out and heads hunched in - just as they did last winter, one day, when there was a freshly fallen snow. The way they hunch in their ~~feathers~~ heads and puff out their feathers makes them look like sick birds -

which of course they are not. Strange to say, though, they are actually feeding less tonight by far than on other warmer nights although you would think they needed more than the usual amount of food to keep up their warmth and activity.

For about 15 minutes I saw only one ♂ (B?) squatting (not standing up) at the very edge of the S.F.P. in the tall grass. He hardly moved all this time, except impercptibly his head. In about 15 minutes the R♀ and then a moment later the B♀ came out to the edge also: for the most part they simply stood around, feathers fluffed out, heads hunched in — just standing; occasionally one would walk about a little and pick some more leaves and then relapse into immobility again. For five minutes or more on one occasion the two

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So stood side by side so close that they touched, preening occasionally, but mostly just standing. Certainly the ♀s appear not to fight, at any rate. One of ♂ ate several rape flowers, a ♂ did this too, repeatedly. They don't usually get the whole flower at one bite but two or three peeks to do it in.

Copulation activities were in evidence several times between 6:45 and 7:10 as follows:

① The ♂ went up to his own mate (for a change!) as if to mount upon her back. She duly squatted down, but he must have experienced a change in ~~[illegible]~~ impulse for he did not put foot upon her ~~and~~ but turned aside and went to feeding again.

② The ♂ mounted his mate but the act was much briefer than usual, the ♂ sliding

off in about two seconds. There were no sounds made this time, perhaps the act was not complete. Immediately after it the birds took to feeding as though they had never experienced any sexual excitement at all — thus, I suppose do the impulsive natures of birds shift from one emotion to the other, with a rapidity unknown to "grosser" animals, such as Homo for example.

(3) Twice the ♂ attempted to mount the ♀, just as on previous nights, only to be interrupted by the ♂ just as previously.

At times all four birds could be seen standing stock still in the middle of the D.F.P., just doing nothing. Strange how they eat least on a cold evening like this and are so active.

No bird went near the water fountain.

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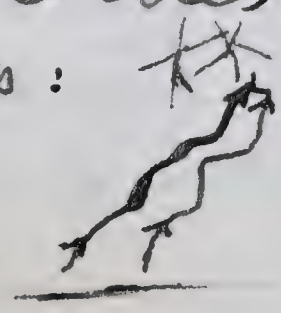
A (lone?) male called "cu ca cow" and also "quill" once, on the e. side of the Q.D., about 7:10; very likely this is the bird of the clipped top hat and no colored band.

At 7:20 one pair of birds flew to roost — they attended about the time they reached the coffee berry bushes, and alighted one on the ground, the other in the bushes, about 25 ft apart. Perhaps they came nearer to each other later; again, perhaps they didn't, for when I first saw them around the Q.D. about two weeks ago, at night, I discovered one of the birds about 35 ft from the other, roosting alone.

Usually, mates pair & keep together, however, as I have noted a score of times or more; the other pair did tonight, for example, one bird following the turns of the other in the air, even — thus:



~~One~~ The of the had kept with his mate called quill quill quill once very loudly, while he was standing right beside her; the separated pair made no sound that I could hear.

The inactivity of the birds during cold rainy weather was well shown by the quail in the upper pasture (in vicinity of pairs 9, 10, on map), also. Although C. and I tramped through and around the blackberry tangles beating them with sticks, in the same region exactly where the other day I flushed such a large number of birds, yet we only routed out two pairs during the entire afternoon (C. 9 and 10), although we beat Anshos in territory of 4, 5, 7, 8, 9. The two pairs that we did route out had to be almost stepped upon before they left, not going in one case until I had beaten the bush 4 or 5 times. Probably

the others, which we failed to find, merely sneaked away or else hunked in the thick growth and refused to flush at all, just like the birds at Station 1 at O'Neill Ranch last Sept.

There was very much less quaring than usual, too, only an occasional few notes from an occasional male.

May 29. Rain all last night, intermittently, and this morning as well. I heard no quear calls until about 4:55 this morning (although it might be that I simply did not wake at earlier ones). The quears that I did hear came from the e. side of the Q.D., where one of the pairs (Pair?) went to roost last night. Of course I can't be sure that the noise wasn't made by one of the outside birds at that place. I haven't heard a quear that seemed to come from inside the Q.D. for about three weeks — indeed only once, as recorded

on a previous page.

Between 8 and 10 A.M. I heard an occasional quail, but nothing like what it is usually. The day is cold, wet, and cloudy.

The ♂ Bpr, or more accurately, the B♀, still continues to run up and down at the S. side of the fence at frequent intervals during each day. She still gives her little cucaca usually followed instantly by an emphatic squill squill from her mate just as always. This has been going on ever since the last time I recorded it, ten days or more ago, but I haven't bothered to record the annoying details in the interval.

The light feathers of the hands are slightly bedraggled, and seemingly their tails too — these are the most adherent parts of their integumentary system and the most likely to brush up against wet grass (except their fronts, which

for some reason don't get wet) they have flown several times, which probably helped to wet their wings.

6:20 P.M. Rainy and cold all day - very few quail heard all day.

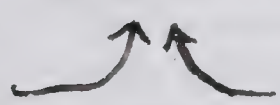
June 1 Didn't get a chance to watch the birds until about 7:25 P.M. All four were feeding at the trip. An outside ♂ had just flown from the brush at the S.W. cor. of the feed patch [region of ±⊗ on map] straight across over the Q.I. and into the trees at the N.E. corner of it, where I have so often heard a ♂ call and made remarked his presence there, of course I don't know if it has always been the same ♂ or not.

The Q.I. birds fed on until 5 minutes after the outside ♂ had gone to bed - as I have noticed before. None took a drink while I watched. A most exciting mix up

took place just at the moment before they flew up to roost. One of the ♂s had stopped feeding and moved toward the roosting trees the other three straggling along behind. Just as one got to the edge of the S.F.P. she hesitated, and one of the ♂s caught up to her. Presumably it was her mate, for he squatted down and he got upon her. There was the usual big, thin peeping from her as they copulated, but no sound (I think) from him). Before they were through (after about a second), - running, the other ♂ came rushing up from about 7 ft away and seemed to knock the first ♂ right off the back of the ♀ — the grass was tall and prevented my seeing clearly. The ♀ flew immediately away toward the roosting trees, as though alarmed, while the two ♂s fought so determinedly that

they whirled once over seemingly in a clinch, perhaps one fell over backwards and the other, meeting no resistance, passed over him too, during their spurring match:

I
usual method of fighting - jumping up breast to breast



II (probably)
What happened, when one was pushed over backwards

In 30 seconds or less they stopped and both cried squill! squill! squill! simultaneously and then one of the Os followed to the roost the one who had fled earlier while, a few seconds later the other Q went with the other Q to roost — at 7:30 precise. The "squill" note denotes intense excitement, of a truculent sort, from all my observations. The grass was so tall that could not see hands on any of the birds.

June 2, 1932. First Quail songs not heard until 4:10 A.M. instead of 3:55 as a few days ago. Probably this is due to the cloudy weather, which retards the dawn just as it hastens the twilight.

Beginning Rats exp.

At about 6:30 A.M. I threw out 3/4 x 1/2 lb of oats in the usual place. To the present hour (8:05 A.M.) the quail have not yet come out to the T.F.P. to feed (that is, unless they came before 6 A.M. which I rather doubt).

To trap

About 2 P.M. - The Rpr. came out to the T.F.P. to feed. They fed all about where the oats had been scattered but ate none of it. Once the RO picked up a piece of chaff, smaller than an oat grain (1/2 the size), and dropped and picked it up again, as though it were the right size, although inedible, as he found out. For the rest, neither of them touched a single kernel. Often they would scratch vigorously among the oats, searching in the earth

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for something, and the oats would go flying. I think they were uncovering and eating tiny sprouting plants (as ever clearer) by this process; once I saw about 7 of these plant sprouts - minute and white - at one of the places they had scratched.

I observed the scratching reaction of the R♀ several times carefully. The bird scratched four times on each occasion, then stepped back about one step and looked for food in the little depression made by the scratching. The four scratches were always repeated two with one foot and then two with the other, either foot being likely to start first, thus: right, right, left, left; or: left, left, right, right.

Just like the B♂, the R♂ was motionless and quiet full during most of the time the R♀ was feeding, only feeding himself occasionally. His watchful mood is a development of a week or so only (see antea for first mention of it).

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The B♀, with her attendant mate still runs up and down at the s. side, also at the s.w. cor of the Q.D., giving her cu cá cá call at intervals. I wonder if she is dropping her eggs (if any), just anywhere.

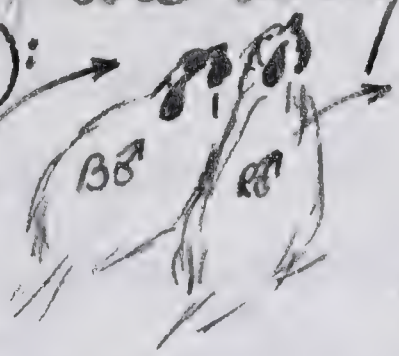
7:04 P.M. (shortly after I arrived). All four birds feeding, the Rs. having just come over from the n. side of the J.F.P., a frequent habit of this. The B♀ picked up 7 or 8 or perhaps 12 pieces of oyster shell in succession from the little patch of it circle I had thrown out. Question - where do laying quail at large get this lime materials? This ♀, also the R♂, ate pieces (litter) from young sprouting (3"-4") grass plants (Avena?)

7:06 B♂ just standing with watchful mein, while the others feed. Presently he took a few pecks then resumed his guard duty.

7:08 Squabble between the two ♂s while they were feeding close

Aphoutzx c. californica

together, the B♂ elbowing the others out of the way (pushing against him):



Top view

and pecking at the back of his head and his neck at the same time, giving his deep tones musical cut cut all the while. Such squabbles hardly last more than a second; the R♂ never runs away, and stops moving altogether as soon as the B♂ tires of attacking him.

7:11 The R♂ came up behind the B♀ and tried to mount her, but she kept walking forward, without squatting down, so that he was foiled.

7:12 B♂ again pecks at R♂

7:16 The B♂, who had been standing apart from the other 3 feeding birds, "onguard" started to walk toward them, but checked himself suddenly, half crouched and gave a single low mo danger call. The other three

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prowe, but, as usual, I could see nothing to cause alarm. After a minute or two the B♂ (who had given the alarm), turned about face and stood at ease, on guard. The other three held their positions for some time thereafter, but I think this was not from fear but ~~just from~~ merely represented loafing, for occasionally ~~one of~~ the ♀s would pick up something to eat during this time.

Just at this time — when the B♂ had his back to them all, and everybody was standing idly about — I saw a an act which looked highly intelligent and purposive for a bird. The R♂ suddenly walked rapidly, and half crouching, in an unequivocally stealthy manner (more of his usual hesitation) over to the B♀ 3½ ft away — the B♂ remaining oblivious to it all. He (R♂) mounted upon her back, but she, as always,

refused to requite his amours. Instead she walked toward her own mate, carrying the crowed-he adulterer, perched standing, upon her back - a most amusing sight. All this while the B♂ had his back turned to the rest but as his mate drew near, still keeping her load upon her back he suddenly caught sight of the two of them. Instantly he changed the R♀, snatched him off his mates back pecked him once and then gave him a distinct bite - a hard, determined, savage nip it was, on the back of the neck. The B♂ ran off to the extreme edge of the I. L. P. and remained there; the R♀, as usual, fed on unconcernedly.

After the fray the B♂ stayed out in the centre of the I. L. P., on guard. He kept uttering a low mo mo which was undoubtedly (not necessarily consciously) for the purpose of keeping in touch with his mate. Finally

he uttered his low musical mut mut call and went to her.

I have always heard this mut mut call when ① two birds of a pair are moving about together, and ② when two ♂s are fighting over a ♀. I wonder if it is definitely associated with sexual activities? I wonder if I shall hear it at seasons other than the breeding season.

The RO♂ about this time went to the water fountain and took 4 sips; none of the other birds went near it.

7:36 BO♂ flew to the roost tree (oak) followed by the B♀. I heard the mut mut (low musical) call again and watched them come to the same branches after having mutually alighted 20 ft apart.

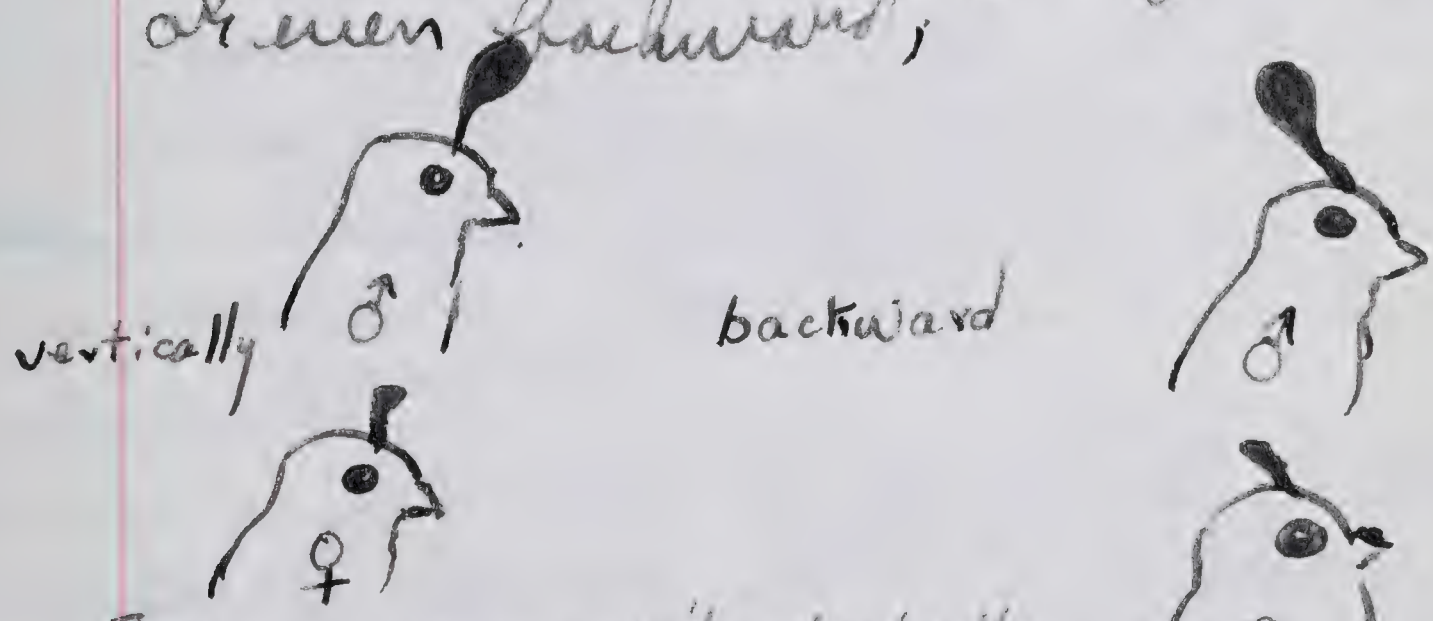
7:37 RO♀ followed by RO♂ went to roost; they alighted together at the very first.

The top knots of quail assume various positions, according

of the actuations (and emotions?) of the birds. This applies to both sexes. When the birds are relaxed - for example when dozing the topknots stick way forward:

especially the ♂s, while family often hangs his bill.

When the birds are feeding the top knot is held high up (vertically), or even backward;



[These drawings don't indicate the varying postures of the body at all only the ∠ of the topknot].

as though to keep it out of the way, off from the ground, at times when the bill is picking up seeds. When the ♂s fight the crest is held back too. I think I shouldn't be surprised if the

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positions of the crest indicate the inwhole state of the bird too. Sometimes a bird will be dozing with crest overhanging its head, then perk up, assume an alert posture, head turning from side to side, and the plume will straighten up, to vertical, too.

See under "Changes in Environmental Conditions, Alpine Creek Road" pp 1-2 for an account of the clearing away of the second growth oak forest which has up until now acted as a barrier to the distribution of the quail.

June 6. Watched the Q.S. birds for a few minutes this P.M.:

2:20 P.M.

The ♂♂ came out of the grass and fed in the J.F.P. alone. I don't remember ever seeing him without his mate before. The ♀ appeared a few minutes later and fed near him. Presently the ♂ ran in a direct line to the water fountain 5 ft. away took 3 sips and then disappeared slowly into the tall grass. The ♀ continued to feed.

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all three birds ate considerable numbers of mage blossoms reaching way up to their fullest height to get them.

6:50 p.m. All four birds feeding in the F.F.P. this time; no quarrels observed. Lag BF is just as restless as she ever was. She will feed for a while and then suddenly, sized by a sudden new and contrary impulse will turn and run straight to the S.W. corner of the F.F., giving an excited little, mo mo mo mo all the while, and will run up and down there as fast as the least just above the gate and try to get out there. I am sure that most if not all the time when she does this there is no outside qual in sight — the cone ♂s have disappeared — it is simply her restless way. The BF always tags along dutifully although he seems

not to fully share her excitement. One time when she was up on the gate beam I called cuca coo several times with my quail caller. This increased her excitement; she called back an answering cucá cá — only to be interrupted by a vehement squill! squill! from her mate — and man hailand south along the beam, craning her neck. I called several more times, this time close to the R.pr. which were feeding in front of the window. The ♂ looked up each time I called, but immediately resumed his feeding; the ♀ did not even look up. Suddenly they both flew — unhurriedly — away, to the e. side of the Q.I., why I am not sure.

Most of the afternoon I spent sitting in the thick almost impenetrable tangle of vines bushes and trees which slopes down from the deer paddock into Los Tranos

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Canyon, calling with my quail caller. I got many answers, but they were all far away, on the opposite side of the canyon, where the canyon is much thinner, with numerous clear spaces, due to the fact that the exposure there is toward the west which results in much more sunlight and much less humidity. I have been over there a lot; there are many open places on the hillsides, thickly covered with flowers, now in seed. This spring I noted that certain species of flowers appeared in bloom on that slope a week or ten days earlier than they did on our own, east-facing, slope. Certain Compositae and others are not present on this side at all, in fact. I must revise my former opinion thus that some quail were living even in the dark moisture

tangle of the east-facing canyon wall. Instead they are living in the open places on the west-facing side. One pair (no. X ③ on the map) is living close to the Los Bramas road - which at that point is adjacent to a flower covered hillslope on the west, and there are doubtless a few other pairs in that vicinity which are also living near the road. But for the most part the territory is unpeopled by quail.

I verified the above conclusion by moving along the same east-facing slope until I was about opposite the Cranley fields and the Q.D. Here I got no answers at all from the Los Bramas Canyon - they all came from the Cranley field and further up the slope where the pastures are.

Addenda - June 1.

June 1. Mills College, Oakland, just across

the road from the science building. E., with L. Lemmon, were hunting quail nests by looking into all the blackberry tangles along the stream bottom which passes through the campus. They found this nest by accident; L.L. just happened to see it as she was passing by. It was at the edge of a low matted tangle of wild blackberry bushes growing at the edge of a shallow gulley, beneath a grove of eucalyptus trees. There was no bird at the time (she undoubtedly ~~appeared~~ flew off as the girls approached), and the eggs showed up through the overhanging vines quite plainly. There were 21 eggs in the nest! This was at ab. 4:30 P.M.

At 6 P.M. E. went back to the nest. This time the ♀ was sitting, and she did not leave until almost stepped on; then she made off and did not show herself or make a sound during the short time that Ethel was at the nest.

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On June 5 I went with E. to this same nest, at about 4:20 P.M. Just before we got to it, when about 20 ft. away, I heard a barely audible rustle from the nest. It must have been the parent departing, for when we got there the eggs were uncovered. There were eggs of two different types of marking and there was a size difference as well, indicating that two ♀♀ had been responsible.

We neither saw nor heard either (or any) of the parents, which illustrates this secretive ways.

This evening the R♂ fed all by himself, something I have hardly ever seen before (yesterday was first time, only this time it was during the whole of the remainder of the day). He had once during feeding time to mount the B♀ — the Bobs. fed together as usual — but as usual the B♂ interrupted, on this occasion driving him

6-7 ft. away, with marked determination and fury.

The "lone" ♂ went to roost at 7:20 p.m., earlier than usual, in the coffee berry bushes at the e. side of the Q.S. The Bev. did not follow until ten minutes later, when they went together, to the usual place in the oak trees. I didn't see the ♀ all during the evening feeding time (that is, 6:45-7:30).

An outside ♂ came sailing in on set wings from somewhere just down hill from the swimming pool and alighted high up (25-30 ft) in the big oak tree.

Ng grass exp.

After dark I put out 3/4 x 1/2 lb of blue grass seed in the usual place

June 8.

3:59 a.m. First bird sounds heard, the calling of some blue birds in the distance. It is only faint twilight.

4:05 First squill call of quail; it came from inside the Q.S. Towhees (spotted) began to trill

immediately thereafter. It is very dark still.

4:16 Another squeal from Q.D. and then one from the barley field. Towhees and thrashers and mockingbirds are now singing loudly. A horned owl booming still. Twilight is still very, although lightening perceptibly.

4:23. Three squeals followed by a few low pit pits from direction where RO♂ went to roost last night.

4:24 Some bird, seemingly the RO♂ fluttered somewhere, then gave a single quar immediately thereafter.

4:25. A bird up by McLellans house began to quar

4:28 another quar from by (or in?) the Q.D.

4:31 Now the quars are coming continually, though, at irregular intervals, from by (or in?) the Q.D. They sound only about 7-8 feet above the ground, but are not near where the RO♂ was last seen and heard. Perhaps he moved.

4:36 Some of the Q.D. birds shift

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about in the trees, and then fly down. The guards still continue.

4:45 the quarrying owl now begins to fit pat and a moment later launches into the air from near the top of the second oak tree outside the Q.D. and goes whirring away toward the swimming pool. The mystery of the guards is solved — also, I was evidently mistaken as to their height from the ground. I guess the Q.D. ♂s have not ever guarded. (Sept 1934 — Right!)

4:47 B♀ flies over to her usual corner, I think, by the gate.

Temperature at 4:50 is 56.0°F

4:52. I don't know what the Q.D. birds are doing; this is the time of the morning when I never see them or hear them. Perhaps they are just setting. Later on, when it gets sunny, they will come to the F.F.P. to feed — about 8 — 9:30 A.M.

5:13. Now the B pair is definitely near the gate; I can hear the ♀ no mor, accompanied by the Cameras patter

mo-mos of her mate. I can hear the ♀ every time she flies up, or down from or to the gate, and her excited (and thoroughly exasperating little mo mos). I hear this same damn business every morning at about this time.

5:19 Caught sight of the R♂ preening as he stood on the sawhorse. Presently he walked the length of it, hopped down, and sent a wavy line of tall grass tops toward the n.w. cor. I think the R♀ may be resting over there.

The two quail eggs which I put into the Q.I. to test the appetites of mice and thrashers about 2 wks ago, are still there intact.

5:27 - R♂ came flying toward I.F.P. from the n.w. corner, but saw me with my head out of the window just as he got opposite, and turned down into the thick fennel of the e. side instead. Here he alighted and gave the pit pit alarm call for about a minute straight.

5:43 The R♂ came flying from

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the e. side of the Q.G., with his mate right behind him — where he picked her up I will I believe — and alighted in the G.-F.P. with her and began to feed. A moment later, as though impelled by the instinct of imitation, the Bpr. came hurrying over and joined them.

For several moments the four fed near to each other, all eating rape blossoms and hardly anything else. Presently further on and there there found the blue grass seed which I threw out last night and immediately they gave up eating blossoms and took to picking up the seed instead. Seeds may be too large for quail, but not too small, it seems.

While they fed on the grass seed a jay flew past overhead, calling. But the quail paid no attention to it than to look up momentarily just as they do at any sound. So much for the reliance quail place on jays as sentinels. Every sound or sight

(1934 - but not the danger note!)

grass
xp. cont.

received the same part of attention — a momentary look. The thrashers, for example, kept flying back and forth past the quail, or alighting on the R.D. fence wires with a resounding twang. Each time they did this the quail looked. They looked up, too, when some birds flew in the "forest" behind the R.D. Once while I watched, a disturbance in the tall (6") patch of Sweet clover began to move towards the feeding birds. At first it was nothing more than a wavy line in the clover, but when it came to the edge of the clover, adjacent to the rope path it resolved itself into a mouse. When it came in sight of the quail the RD stood up to his fullest height, craning his neck, and went pit pit pit. Then he ran toward the mouse, still calling, but the latter was very timid and immediately ran back into the clover. During the next half hour or more this mouse, and one other, kept

skirmishing, or foraging, at the edge of the clover most of the time. Every time one of them came out into view the Rd would pit pit and start toward them but they always retreated promptly before he could get near. I wonder if this hostility on the part of the quail is {adaptive teleological, perhaps being directed toward preservation of the eggs. One of the quail eggs is lying only about two feet from where the ~~quail~~ nice appear however.

The Rd stood on sentinel duty part of the time while the others fed, but about half of the time he fed with them, there being no sentinel on such occasions. There is a little clod of dirt right where I saw him feed, and when doing sentinel duty he usually stands upon this, which raises him about 2½" above the ground. I don't do any sentinel duty, it seems, at least I have never

seen them do it.

The Bpr. did not stay at the I.F.P. as long as the Rpr. — thanks to the fidgety behavior of the B♀. At 6:03 the B♀ dragging after her her consort, made a bee line to the gate and put in time at the regular airline performance. The Rpr. fed for a while, then wandered over there too.

6:13. All four came back, the Rpr. leading. They fed on rape blossoms until they discovered (or rediscovered) the grass seed, just as before. The R♂ kept on feeding on the rape even after having picked up some of the grass seed. One, inviable dictu, the R♂ suddenly and with no apparent provocation made a vicious dash at the B♂ who was feeding 3 ft away and pecked at him. The B♂ did not run away but pecked back, but at this juncture the R♂ turned his back, which left the B♂ standing pecking the

back of his adversary's neck, which he shortly ceased to do. I noted interest the R♂'s turning his back as simply a sudden warning of his pugnacious emotions, due probably to a sudden to some other emotion or impulse — he had another chip in his car, so to speak.

6:25 All four wandered away again.

6:33 P. pr. back, later the Bpr. returned also, but disappeared again shortly. The Rpr. were still feeding when I had to leave at about 6:50 (observations up until then were continuous). When I returned at about 7:40 no quail were at the S.F.P., although the Bpr. was at the gate. I did not see any of the birds go to the water fountains while I watched.

11:15. Buster McLellan tells me that this morning he found a brood of young quail, evidently just hatched up on the upper

pasture" near the 100,000 gallon water tanks (map of this region not yet made by me). The young scrambled into the vines which are growing at the base of an old tree stump. The old birds pit-pitted vehemently.

11:25 A.M. Bar. came out to feed in the J. F. P. for a few minutes.

Thinking of the habit quail have of eating flower blossoms, I have wondered if they may not have exercised a selective effect upon many species of plants during the course of evolution. If buttercups, blue-eyed grass, etc. are more than 15 inches tall, the birds are unable to reach them, even by jumping. Perhaps this has had the effect of conserving many tall (which usually means vigorous) plants and destroying many short ones. [Of course other factors, such as need for light, greater radius of seed dissemination, etc. may have operated together with the factor to which I refer.]

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2:10 (observations no longer continuous after about 10 A.M.) The Bpy. came out to feed again; the Rpy. is invisible.

This afternoon I made map II. The family of young seen by Buster McLellan was located (no ① X map II). It consisted of ten young plus the old ones. They flushed from a low tangle of wild rose vines, right where they had run in when Buster passed by, apparently. They only left when I tramped into the tangle. The parents jumped out first, then as I pushed further into the tangle the young jumped out one by one and flew into a nearby extensive tangle, where their parents had gone. They flew in a fluttering fashion, with low peeping cries, and upon alighting in the other tangle were swallowed up by it forthwith, nor could I drive them from it. They are older than Buster said, evidently ~~two or three~~ about ten days, if Donald McKay is

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cannot (Quail Bulletin).

It will be noted, upon looking at the map, that there are no quail on the west side of the pasture, in spite of the fact that here are several extensive blackberry and wild rose tangles there, at the edge of a field which is thickly studded with wild flowers now in seed. Quail pairs ● and ● puzzled me at first, because I could not find any water near this habitat which is in just the same sort of country which comprises the west side of the pasture. I recalled, later, though, the permanent spring [● on map] about 300 yards from there, which seems to solve the mystery. Do the old birds take their young all that distance to water, though ?? Bustos confirmed my surmise that there was no other water supply near the two pairs that I have just mentioned.

June 9. Went over practically the whole of territory in the

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pasture Cat, shown on map I, The time of day was 10:30 A.M. - 12:45 P.M., and hot was hot, sunny, and nearly windless. This may have had something to do with the fact that I scared up very few birds indeed, even in the identical places where earlier I had flushed (and recorded on the map) a dozen or more individuals. One would have guessed, from today's experience, that there were very few quail in the pasture, whereas the reverse of this is true. So much, again, for their secretiveness.

June 12, 1932. There is much less quail in than there used to be, two weeks ago - a fact which I began to note about four-five days ago, although I was not then sure of it, as I am now.

I had time for only a few minutes observation of the Q.I. quail today, from about 6:50 until 7:20. The RS and the Bgr. fed together, amicably in fact, but the RP was not in sight.

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She must indeed be sitting on eggs. I am beginning to suspect that the loud agitated pit pit pit noise made by ♂s (and I think ♀s too) when I pass through their territory at this season is a cry of anxiety and indicates the presence of a nest. I suspect this because:

(1). Birds out in the pasture on w. side of main road (map I) almost always make this noise when I pass even at some distance by certain localities (marked on the map as being their territories. Furthermore earlier in the season quail did not usually make this noise unless suddenly come upon at close range.

(2). The Bpr. has been making this noise recently (last 4-5 days) when I have passed by the s. end of the O.D. (where I think they have their nest).

(3). The Bpr., which is not as

Zonotrichia c. californica

Note = This can be used as a determining the number of nesting pairs in a locality.

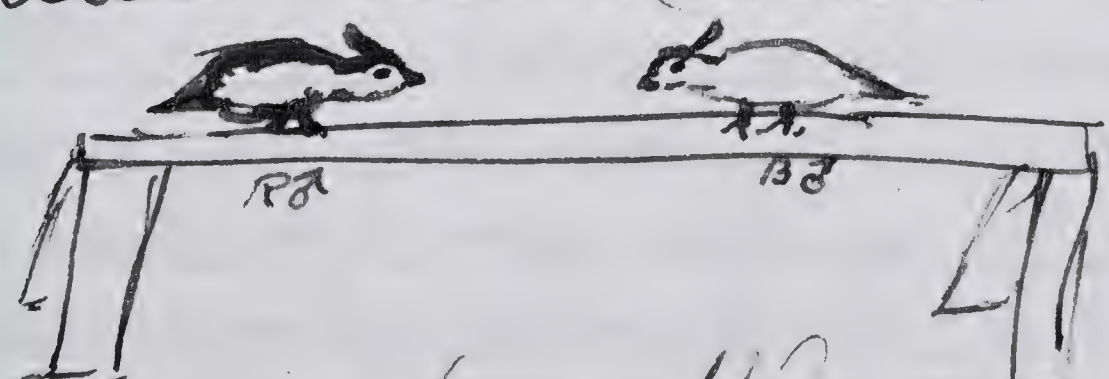
for along in nesting (if at all) as the R. pr. hardly ever (if at all) gives this call even when passes close by the Q.D. door, where they are so often to be seen perching, and drive them from it into the house.

The meadow mice were foraging more boldly today (perhaps because it was approaching dusk), and they sometimes passed through the clover within a foot of the R.P. He invariably stood erect into new crouch, and called pit pit pit, but today he did not venture to approach the mice. Strangely enough the Bpy. which was feeding with him paid no attention to the alarm "pits"; perhaps they saw the mice too, and were aware of the cause of the alarm signals.

See under Weather Notes, p. 18, for account of gradual drying up of grasses and wild flowers up here. On the Q.D. this process has just begun.

June 13. 6 A.M. The R♀ was out in the J.F.P. feeding with her mate. She accompanies him in the early morning feedings even though not in the late P.M. ones. I wonder what time she feeds last in the P.M.

3:30 P.M. The R♂ was feeding unaccompanied by the R♀ this time. He kept with the B♂. most of the time no hostility being shown. Once, when I accidentally frightened the feeding birds, all three flew to the n.e. cor of the J.J., this being in the R♂'s territory. The two ♂s alighted on the outhouse there and, in a moment faced each other with lowered heads. The



R♂ ran toward the B♂, and then passed him, receiving a rather feeble peck, which he

(the R♂) did not return, as he went by. Presently he hopped off into the tall grass and disappeared. The B♂ returned later, to his own side of the P.O. This undesirable in the hostility of the two ♂s is characteristic.

From about 3:45 until 5:45 the R♂ fed, afoot on, in the J.T.P., always by himself.

Today I rode for eight hours over various parts of the ranch, mostly west of the ridge, to get an idea of the presence and distribution of quail on parts other than that section east of the divide being made subject of an intensive study. See map III; ▷ = approximate localities where quail were heard calling; ..... = approximate routes taken by me. As the map shows, quail were present around, or near, all water sources, (each ▷ = one calling ♂), and as nearly as could be estimated from a single hiking ride during a part of the day when the calls of the ♂s tend to diminish,

they were nearly as abundant as on the pasture of map II. Much of this territory was heavily wooded canyon, with open pastures between (////, = woods), and as in other localities the quail were at the margins between these two types of environment, but even then only in those places where the additional factor, water, was present. The water, in turn, seemed to condition a fourth factor also necessary, namely tangles of vines or brambles where the birds could nest. Intersecting areas of forest and pasture where there was no water usually showed little of this type of cover, and also, no quail.

June 19 The quailing has fallen off to nearly nothing; in fact I heard no calling of this sort at all after 8 P.M., and am not even sure that I heard any before that; I have only a dim recollection of hearing

start
a 2n quarrying at about 4 P.M., but I was too sleepy to verify this.

The R ♀ was apparently on the nest all day, or, that is, a good part of the day. The excited pit pits broke out once, early in the morning, indicating nesting activities in this connection also.

The following notes were taken by Ethel:

2:45 P.M. The loud ~~pitto~~ pit pitting heard again. It proved to be made by the Rpr. (which sex, or both?), both birds of which were perched on the long cross beam ═══. A thrasher was also on the beam, about 6 ft away, but whether or not he was the cause of the commotion is uncertain; it is more likely that a meadowlark was the cause than the thrasher. In a few minutes the thrasher flew away, and the red pr. followed soon after.

Some time later the Rpr.

came out from the grass and fed for about a minute, disappearing again into the grass at the end of that time.

3 P.M. The B pr. flew up to the long cross beam. After about a minute the B♂ dropped down into the grass again, the B♀ remaining on the beam. She stood on one leg quite a-bit, it being the aluminum-banded leg. Presently she went down into the grass also, and a short time later (few minutes) she and her mate emerged into the D.F.P. and fed for a few seconds. During this time the R♂ flew up to the saw-horse, and after remaining there a few minutes, flew to the beam, where he stayed for five minutes or more.

Bermuda grass exp

3:15 P.M. Scattered Bermuda grass seed in the usual place

3:45-4 P.M. Both prs. came out and ate of the Bermuda grass seed for 5 minutes or more; one ate a rose blossom, and

all of them ate rape-leaves and grass leaves. Presently the Rpr. went away, the B♀ remaining to feed while her mate stood by on guard, frequently uttering his little low mo, or better, "chuck" note.

After eating for five minutes after the Rpr. had left she (the B♀) went to the drinking fountain drank a half dozen sips, splashed through the dish (walking) to the other side, and then flew up to the cross-beam where the R♂ was also sitting at this time; the B♂ did not follow but disappeared into the grass (observations ceased at this point).

E. writes: (Phe)" quail appear to be less easily frightened (now) than earlier in spring — 3 times I walked down path in plain sight while quail sat calmly on beam". I have recently made a note of this increasing tameness, I believe, but cuish

to indicate that this tameness is more readily observed by some one like E. who has not been around here for some time than it is by me who have been here right along and never looked the gradual change, more or less.

Watched from 7 P.M. until 8 P.M. No quail came to the 9.F.P. to feed, which is unusual. At about 7:25 P.M. the BC was seen perched motionless, quiet, head pointed down, on the saw horse.

7:32 - He dropped down out of sight in the tall grass.

All has been silent in the Q.I. this whole time; not a single quail note heard.

7:37 A quail way over in the coffee berries at the n.e. corner flew down into the grass below; don't know the meaning of this.

7:43 Heard some flapping over in

the coffee, services near the above-mentioned spot. Perhaps this is the ♂ going to roost.

7:47 Heard quite a considerable commotion, lasting for several minutes. Branches swayed, leaves a rustle, and there were faint cries. One I saw a great blur across a gap in the bushes, following shortly by another. I infer that this was the ♂ going to roost although I can't be certain, of course it might have been just 2 ♂s, but I doubt it.

I say no outside ♂ going to roost in the oaks tonight!

Mrs. McDellar says that she caught a quail which had got trapped in the Polly bungalow. It had flown in through one of the broken panes, windows there — why, I don't know — and was somewhat stunned from bumping against the glass in its efforts to escape. She liberated it, after keeping it

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allday in a cage, and it flew off strongly. It was a ♂ with one red celluloid band (and the alum. one, of course). Perhaps this is the ♂ that called up to me at the powerhouse there recently (see map 1).

June 20, 1932. Notes taken by Ethel.

11:25 A.M. A loud quitting noise was suddenly heard and the R♂ and a ♀ (must have been R♀) were seen to fly out of the grass. The R♂ alighted on the ~~cross~~ cross beam; the ♀ alighted in the brush on the gate. Both kept up a loud and continuous pit pit (or pwit pwit) for about a minute. Then the ♂ joined the ♀ on the brush, the pwitting continuing, but abated, (although gradually becoming less after a while). At the end of five minutes only a very faint clicking noise was audible from the two birds.

11:45 R♂ and (presumably) R♀ feeding in O.F.P.; R♂ flew to cross beam

12 noon. R♂ still on cross beam; it and the nearby oak home are his favorite look out perches. The quail from vicinity of orchard, mentioned

previously called cuca cow at this time. The RO" appeared to react to this by walking back and forth (on the beam) — he had been quiet previously — and pitting several times. Once during this time he turned his head directly on one side, looking straight down (or straight up)".

12:05 The RO flew down into grass.

[no observations between these hours]

2:30 P.M. E. heard a Cuad quitting of the birds and went (from beyond the quail study area) toward the Q.D. to investigate. At least three, probably four of the Q.D. birds were on the top of the gate, and flew at her approach.

3 P.M. RO was standing on the cow-frame again. It was 88.5°F in the shade (and no shade where he was). He panted continually in the heat. One would imagine that he must have quite a strong impulse to do sentry duty to bring him out into what is obviously an uncomfortable

spot like this. Once he pulled and picked at the flowers of a Lolium perenne plant, the stems of which were growing profusely all about, and at a height just about level with his head as he stood on the saw horse.

3:07. Jumped into grass and disappeared.

3:11 The cucá coo call heard from the ♂ up near the ranchhouse again. Perhaps the heat of the last few days is responsible for the almost complete lack of quail calls of any sort recently.

3:15 R♂ is back on the sawhorse

3:27 R♂ now on the big crossbeam. He is still panting. The B♂ has not been in sight at all so far; perhaps he has not yet reached the sentry stage in the incubation cycle and so does not feel impelled to brave the heat.

6 p.m. R♂ doing sentry duty on the saw horse.

7:25 R♂ on sawhorse again; disappeared shortly after this.

June 21, Alp. Ch. P.

Got up at 6:45 today, and was awake at about 6 yesterday, yet, with the exception of one very early yesterday (4:10 A.M.) when I was half asleep, I am sure that no quail have given this cover call. The hot weather, or the hatching of eggs, or both, has marked an abrupt cessation of this call. The cucacow call is seldom given either.

Between 10 A.M. and 12 I searched the pasture (Map I) for any signs of young. There was not a sign, in fact one would hardly have guessed that there was a quail in the whole place. The hot weather, or the possible presence of young, or some other factor, has certainly made them secretive. At the more satisfactory place where I saw the 10 young (Map II), I found not a single quail today. Since the birds there had a whole brush covered and wooded hillside to escape into at my approach, this is perhaps not surprising.

Down in the pasture shown

in map I. I beat the bush almost entirely in vain; this is in marked contrast to the state of affairs the time when I first went through that section and made the map. At that time quail routed out at my approach by dozens (almost, as in map). But today I actually saw only one pair (not clearly, even then), this being at ▲ 1, and heard a very faint mo-mo at ⊥ only after I had beat the brush hard for several seconds. The ↑ pair, by the frightened chirps of one of the birds (♀?), and by their refusal to flush, made me think that perhaps they might have young. I don't know exactly what to think about the situation. Suppose the other birds must still be in the region, but they are certainly keeping quiet.

12:13. At Q.D. Sudden outburst of quail quits hard. The Rpr, which is responsible, has flown up into the dead brush at the s. side of

the Q.S. and are calling thus in an excited manner. This sort of outburst seems to be periodic with them; I wonder if there is a real cause for it or not. The potential causes are Mimotes and other species, and (remotely) a snake. Perhaps they just do it anyway, even without a specific cause. This latter is indicated by the fact that at 12:30 they ceased their calls and flew together to the S.F.P. where they fed unconcernedly together. The ♀ did most of the feeding, eating grass and (possibly) Anthenis cotula. Presently they moved over to the drinking fountains; both ate quantities of sour clover leaves (Melilotus indica), then first the ♀ drank 3 sips of water, after which the ♂ drank 4. Temp. was 88.5°F in the shade. At 12:25 they disappeared into the grass.

Heard a cu ca caw from the outside of that calls from vicinity of the orchard. The B♀ was heard to answer.

The clover has grown so tall that the tops of the heads of the birds are barely visible when they walk

through it. The method used by the birds to go through it when they are in a hurry consists of ~~a number~~ a step or two and then a big jump forward followed by another step or two and then another jump, etc etc. Only the jump is visible and it is so strong that it carries them well up over the denser lower portions of the cover. ~~#~~ This method of locomotion makes the birds look like huge toads jumping, especially when the cover or grass is so tall that they can be seen only intermittently; e.g. can they do it in the tall grass (Avena fatua) also. The wings are not extended during this exercise.

5:23 - Heard a sudden explosion of pitting, and found the RQ up on the cross beam, walking about, pitting, her mate was down in the grass, out of sight, by the W. side of the Q.D., also pitting briskly! Presently he

Photo.

joined her on the beam. They both stopped petting then, and began to preen, walking up and down a few steps, at times. Got several photos of ① ♀ alone, ② the pr., ③ ♂ alone, on sentinel duty. This last [③] was after the ♀ left him and flew down to the owl house. She stayed there only a few seconds then dived down into the grass and disappeared.

5:35 ♂ still on s. duty. I passed him at fifty feet, on my way down the path, but he gave no indication of alarm. The frequent shooting of jays in back of the shack has never once given rise to the point point explosions, either.

Took photos of feed patch before it should turn brown with desiccation.

That the ♂ is on sentry duty and not just sitting is further indicated by the fact that he keeps checking his head about, in an altogether alert manner,

tos.

instead of just sitting in the usual relaxed manner.

5:42 RS jumped down into grass.

June 28 - Harrison Ranch ab. 10 mi. s. of the Bonita Ranch and 10 mi. east of Chula Vista, San Diego Co., Calif. Type of country - dry, low, rolling hills and flat mesas interspersed with numerous gulches and sandy washes, most of these with a slight amount of water at their upper ends. The main mountains - from which the water comes, is to the east, where also is Lake Henshaw (Stink) and the Otay Lakes. This is Radio's second experimental area.

On driving along a narrow dirt road winding through fields of barley and mustard, yesterday, flushed two coveys of quail each containing about 15 birds. The coveys were composed largely of young birds of the year, which were so nearly grown that they were hardly distinguishable from the adults. They flew

strongly, but were as yet in the gray immature plumage.

To day I went out with Radin's assistant and field man, Allan McKean. McKean has learned a great deal about quail. Below I list some of the things he told me, or showed me:

(1) Water is present in his section in nearly every canyon, either as a slight trickle or as a tiny seepage spot. Some of the smaller seepage spots evaporate entirely during the day time, only to reappear again during the evening. Quail might thus quench its thirst at night and then again in the early morning in localities where the casual observer, going through at noon, would be certain that there was no water at all.

In addition to this there is the City of San Diego pipe line, which leaks in

a great number of places and constitutes an extremely important ecologic factor in the region. One wash still has a small stream, meandering through it. By the time it dries up, if it does so later, all the broods of young quail which now live there will be able to fly to water elsewhere (as at the pipe line, or further up the wash).

(2). During the period immediately following the hatching of the eggs broods of quail are almost impossible to find on account of their secretive habits. The adults won't fly and the young, as yet, can't fly. This must be the stage my quail at the Alpine Creek Ranch are in right now. When the young birds first get the use of their wings they fly much more readily than the adults, and are quite readily discovered for this

reason.

(3). The young "struggle along," so to speak, as regards date of appearance. The great majority are at this date nearly as large as the adults — all that I saw during my visit were of this size — but there are a few broods wherein the ~~number~~ chicks are much smaller — doubtless due, at least in some cases, to accidents befalling the first laying.

(4). Rankey mullein (Eremocarpus setigerus) is an abundant plant in this section, as I saw, myself.

(5) Mr Kean once saw a quail repeatedly running at a roadrunner that was passing by near its (quail's) nest. The quail drove the roadrunner entirely away before it ceased its hostilities.

(6) Mr Kean described to me in detail the actions of a king snake which was

apparently trying to capture some young quail. The adults, not at all "petrified", as legend would have it, ran in front of the snake, the fruits trailing wings, trying to decoy him away. He followed them only a few feet and they returned to the place where the baby quail were. The adults then called the young over to a thicket about 100 feet away. For a while the snake remained where he was, but just at dusk he went over there to where they were, seemingly guided by the sounds made by the birds. When dusk fell Mr. Kean collected the snake; it had as yet caught no quail, however, Mr. Kean thinks that some of the young had become scattered and lost, which at their age could only prove fatal to them. Some other night prowler, if not the snake was certain to get them. Mr. Kean thinks the roosts into her

young, brooding them, until they are quite large, and are able to roost upon the trees.

(7) Mc Kean once saw a bob-cat spring at a quail, a ♂, but he missed it, and the bird flew off unharmed.

(8) Cattle are very detrimental to the quail in Mc Kean's section, due to over grazing. The grass is short at best and although it effectually conceals the nests if not cropped down, it does not last any time when grazed. As a result the nests on the area which are neglected, are soon exposed to the many dangers which beset quail nests, even when they are not actually trampled by the cattle. Mc Kean thinks that the mere presence of the animals is a disturbing factor and may cause desertions, for he has seen ♂'s sitting excitedly at their approach. We saw two remains of nests, only the broken egg shells remaining. One was fairly well sheltered

beneath an Eriogonum fasciculatum, but the attempt was just at the edge of a very small clump of weeds, and since the grassland all been grazed away, it stood out in plain sight. McKean thinks that exposure such as may some times result in chilling to the eggs by over-heating in the sun's rays.

(9). We saw numerous coveys of birds in the willow thickets along a tiny stream traversing a wash. One of these coveys numbered about thirty birds. McKean told of one covey further up the wash which numbered eighty birds.

(10). This is a good year for quail in this section (So. Calif. had lots of rain this winter).

June 30, 1932 Went to visit the Chino State Game Farm, just north, and adjacent to the Las Serranos Country Club, Chino, Calif. E. D. Platt, in charge, gave me the following information:

Lophortyx c. californica

(1). Meadowmice (Microtus) get into the quail pens in considerable numbers, attracted by the food. They do not eat quail eggs unless these are already broken, but they do cause the quail to desert their eggs sometimes, when they start building their nests in the same straw stack or weed clump where the quail nest is located. The way desertion is brought about is by the mouse covering up the eggs with straw during the course of this nest construction; the quail will not uncover her eggs, it seems, once they have been covered up.

(2). Valley quail assist the ♀s in incubation.

(3) The quail note is seldom heard from birds inside the pens. Perhaps this is because it is the custom to confine 6-7 ♂s, with 10-12 ♀s in a rather small pen. Under these conditions, Platt thinks,

Lophortyx c. californica

Sept, 1934

no! the Quail is the call of unmated birds

there is little chance for ~~the~~ monogamous matings, and a state of promiscuity prevails. One gambel quail could be had, did give the quail note more or less continuously unlike the other quail, until Platt, getting tired of the constant noise, got rid of him.

(4) A number of his valley quail Fs were caught late in the spring, and of these some failed to get used to their new environment in time to nest; others, however, nested in spite of this.

(5). Young quail are provided with water from the first.

(6) Outside quail are attracted to the pens quen as in my experience, and they behave in the same way.

(7). The farm is raising more and more quail and fewer pheasants as time goes on. This year they are raising about 3000 valley quail.

(8). No ground squirrels are present

Lophortyx c. californica

around the pen, but weeds are abundant.

(9). Platt would like to have all his out-going birds banded.

Alp. Ch. R.

July 3 - Have been away since June 21.

On my way up the road past the barley fields: [Leo Francis Rd] [main Rd.]

I saw three adults and two small quail scamper along the road ahead of the car for a few moments before diving into the brush. Two of the adults seemed to be a pair, and the two young ones kept with them; the other adult disappeared before I could ascertain the sex. Bill Zerbone tells me that he saw about 10 quail of this size near the same place.

7:P.M. the Q.S. no sight or sound of quail so far (I have been here since 6:P.M. Are the birds dead? escaped? or just secretive as hell due to late nesting stage?

7:22P.M. Heard a slight fluttering of wings and saw a swaying

of the bacharis just now; heard also a very low pit pit pit for about 60 seconds, from the same place. At least one quail must be inside.

7:50 It is now dusk. The "evensong" of the spotted towhee is heard, also the last call of a jay. — still no sound, or sight of quail except the one time mentioned

7:52 Faint squeals as of a quail flying up to roost in the bushes at the far n.e. corner of the Q.P.

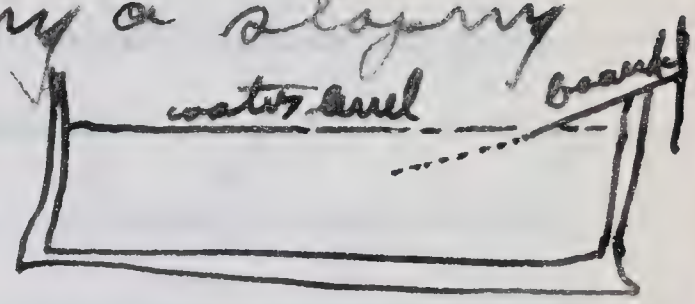
7:55. Same faint sounds again for just an instant, then silence; the day is done.

July 4- 7:20 A.M. - Commotion of pits started up at n.w. corner where the Rpr. hangs out. It turned out to be the R♀ and one other, doubtless the R♀. At 7:30 it quieted down again. I think I heard a faint cuca ca of the B♀ a few minutes before this.

9:27 Discovered the Rpr. standing by the drinking fountain and — wonder of wonders! — they were surrounded by a flock of

baby quail which can't be more than a day old! The old ones stood for a minute, side by side, both watchful, while the young ran here and there around them. One of the young ones ran to the waters edge and scrambling upon the stones placed in the fountain, drank several sips of water, or rather, trying also to get a drink, apparently, fell into the water where it was deep ("1'4") but instantly paddled out again to the rocks. At this I went out and filled the floor of the fountain solid with rocks so that the water would be shallow enough. Apparently there is no danger of drowning to young quail at a drinking place provided there is not far away a somewhat slopping or sheltering surface which they may use to crawl out. A perpendicular walled cattle trough might prove dangerous, for example but even here the danger could be

remained by fastening a slaping board at one end.



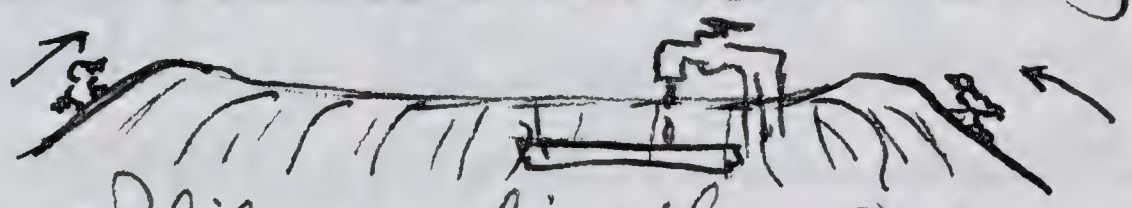
1 P.M. - Saw the quail once about 10 A.M. in front of the window. They were moving slowly through the grass, the ♂ giving his little low mo-mo call and the baby quail giving a more or less continuous, scattered, faint, cheeping — the two calls doubtless serving to keep the birds together. Since that time I have heard no quail and seen none.

2 P.M. The Rcs. with young came out again. The adults each drank 2-3 sips, some of the young, about 3, drank a few sips each, but the others although they scurried about in the vicinity of the water, picking up minute substances, took no water. They keep within 3-4 ft. of the parents, and when they get further away they give a plaintive "lost" cry,

this being somewhat louder than their ordinary "clucking" chirp. The old birds spend their time walking about, feeding occasionally and remaining very alert. They are certainly secretive, too. Their mo-mo call is given at intervals, very low.

2:17 Bpr. just flew up to gate. This is the first time I have seen them today (or since yesterday either). I think from this, that the Bf may be setting.

2:30 - 5:30 - I erected a trap for the young quail, consisting of an 8 inch piece of screening surrounding the water fountain and adjacent ground, the screen being tipped:



While working there I found about 6 "clocker droppings" as they call them in "The Grouse in Health and Disease", that is, very large, solid droppings (unlike any I have ever seen before), which

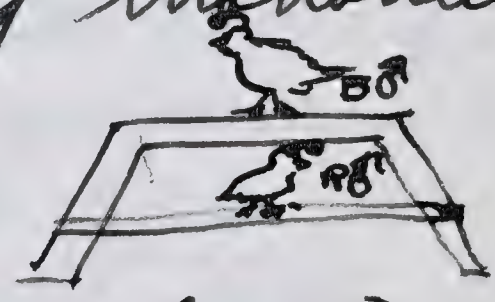
the above mentioned book states to be made by the ♀s during incubation time, due to irregular hours and protracted sitting. Perhaps the English game keepers may be able to use these as indicators of the abundance of nesting birds on the moors, but in this type of brushy environment, here, it would be quite impossible ever to find a significant number of them. I could only find the six right in the quails principle feeding place, as it was, inside the Q.D. I don't know which ♀ made them {later - R.T.}

It is significant that during my 3 hours inside the Q.D., making the trap, I heard not a single pit pit. The birds certainly are secretive

6:20 P.M. - no quail seen yet. An outside bird has begun to call cu ca cow, near the Q.D. on the N. side. He kept it up intermittantly for about five

minutes, but there was no answering sound from within the P.J. The B♂ must be feeling quite domestic, not to answer!

About 7 P.M. Both ♂s on the saw horse, standing motionless and watchful:



The B♂ is now behaving just as the R♂ has been behaving recently, that is, doing sentinel duty unaccompanied by his wife.

Presently the B♀ joined her mate on the saw horse. She has perhaps been sitting during the day. A few minutes later the B♂s. left the saw horse and presently the R♂ followed. They appear to be feeding upon the wild oats (seeds) which today mowed down with the scythe in order to obtain better visibility.

7:25 Still no quail have come to the water fountain. Is it that

they don't drink every (or any) evening?

June today I scared quail out of the experimental feed patch. They were in the very tall, thick, extensive growth of Anthemis cotula, just s. w. of the clump of 3 cypresses. The feed patch offers a fine assortment of seeds at the present time, so it is not surprising they are there. One of the times I flushed both birds of the pair and at the same time, from the same place, saw waving of grass tops as though a baby quail were running from me. Certainly it was something small and active, but in fact it was, it eluded me. The parents (?) jet pitted excitedly, but presently disappeared. The second time I heard quail alarm calls and saw ~~the~~ a bird running through the grass, but was not close enough to count tops before they escaped through the south

fence into the brush.
Have heard no quaring since the last time it was mentioned, a week ago.

7:57 p.m. – No further sounds heard from any quail.

July 5 – 7:10 A.M. Heard the quail at the S.W. corner give the cuca cow call about three times. He must be the ± (see map I). He was answered twice by what seemed to be the Bf, by the sound. (She and her mate were at the N. end of the colony by the fence. I haven't seen the Rpr. yet, and no quail has been to the drinking fountain yet, it seems.

7:40 A.M. Red pr. with young appeared at S. side of drinking fountain trap.

8:10 They are still there, and have made no effort to go to water.

8:16 Bpr. is now in sight, standing near the fountain, leisurely feeding; Rpr. is in same place as before.

8:20-25 – The Rpr. suddenly appeared, with their young, and went to the water fountain. Old and young scampered over the

trap I made yesterday without hesitation and began to drink. The old birds both drank, but not all the young ones did so before I came out and interrupted them. I went out at this time to catch the young. The adults flew when I was about 20 ft away, alighting on near by bushes and put pitting in feminized haste. The young crouched shrilly until I came with sight, when they became silent and crouched down motionless, squeezing themselves into crevices between earth clods, or beneath grass. Like Watsons young terns, they are thigmotactic in this respect, and may sometimes be seen quietly sitting with their heads in a crevice but their bodies more or less protruding. When I went to pick them up some of them "came to life" again with shrill peeps and dived into the tall grasses, where I found it impossible to find them. Only

one did I locate in the tall grass, out of about 7 that had there, even though I knew within a radius of three feet where to look. Such is the inconspicuousness of the young. The only way I succeeded in catching all of them was by returning with those that I had captured and waiting for the parents to appear and call the remaining ones out into view again. This the parents obligingly did time after time. Their calls acted like a magnet upon the young; they responded at once with tiny peeps and came running pell mell out of the grass to the edge of the map opposite their folks. After about 5 times I rounded up all of them. During all this commotion the Bpr. mother showed itself now made a sound - attesting to the indifference, as well as the secretiveness of the kind. I not before this, when the

Rs. had taken their young to the water, the B pr. had stood and walked past the young of the Rs. at a distance of about or less, but they paid the youngsters no (discernible) attention. The Rs, on the other hand, made no effort to drive the Bs. away; there was complete indifference upon both sides.

Each time that I repeated, leaving part of the young still unbaught, the Rs. would jump down from the bushes where they had been sitting, and as they ran towards the "trap" gave the cu ca cow call loudly. The ♂ gave this call louder and more often than the ♀, but she gave it clearly and unmistakably too — this being the first time that I had heard her ever give the call. Like the B ♀ the call had a decidedly feminine quality. When the parents

called thus the young immediately responded, even though they were hidden in the grass. They peeped smilly and ran toward the old hens at once. Even those inside the cabin, in a canton, would commence a loud peeping at the calls of their hens outside. The call is really a shrill "wee, wee, wee, wee" rather than "peep".

I kept the young twenty minutes or more in the cantons before weighing them. It was a hot morning, and thinking that they might become overheated, I put a bunch of wet clover stems into the bottom of the box, and then put the box in the shade. The result was almost fatal. When I went back ten minutes later all but one of the babies were in a huddle at one ~~end~~ corner of the box. This one baby had got its under surface quite soaked, probably because he had been pressed down upon the wet clover by his bros. and

sistors. It ~~sunned~~ was very feeble, and when laid upon its back it had not even enough pep to turn over. I thought it would surely die; however, I placed it in the warm sun (only its head being shaded, to avoid sunstroke) and in fifteen minutes it had entirely regained its strength and pep. This susceptibility to chill is in ~~confusion~~ accordance with the findings of D. McLean and others; I can readily see how a storm could prove fatal to the young, even though it were a slight one.

The wts were:

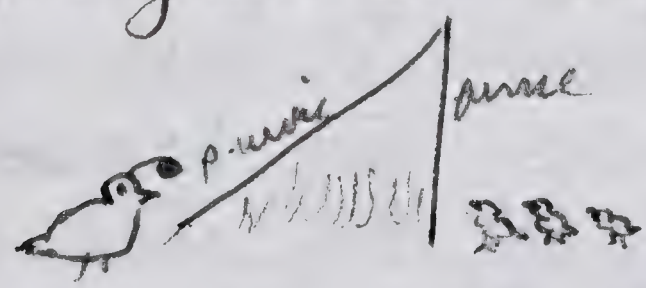
5.7, 6.9, 6.6, 7.2, 6.0, 5.6, 5.0, 6.4, 5.0, 5.8, 5.3, 6.6, 6.1, 7.2, 6.7

I erected a 21" fence of screen all around the trap, inclosing an area thus:

This move raised hell with

everything. The parents could see this young through the screen, and instead of flying up over the mere 21 inches they ran back and forth endlessly at the base of the fence. This kept up for hours — until noon in fact. The worst of it was, that the youngsters ran back and forth on this side of the fence peeping endlessly, and had no ~~[illegible]~~ time to eat or drink.

In the afternoon I fastened slanting poultry wire (1" mesh) up against the fence thus:



But still the parents ran up and down frightfully, or stood at times in the shade. Later I leaned card boards up against the inside of the fence, so that the parents would have to climb the poultry wire ramp

in order to even them young, but some of the chicks climbed the posts and got wedged in between it and the fence, and one of them died so I cut that out. Finally, the ♀ got caught in the poultry netting and I caught her and clipped the feathers off one wing and put her inside the pen. Her weight was 165.5 — a considerable loss from the last time. After a few minutes of running back and forth trying to get out, she settled down by one of the fence posts, in the shade, and fluffing out her feathers, covered her babies. This was at about 4:45 P.M., yet she did not move from her position for the rest of the day and was still there, part of the time with her eyes closed, dozing, as night fell. This means that she made no attempt to go for water after being caught. Also, that the chicks have not been near water since early morning and most of them, I think, not

out of RQ again.

thers. The ♂ I did not see again the rest of the day, nor the Bpr. either. They might have got water from a sprinkler which I had on near the fence, outside it.

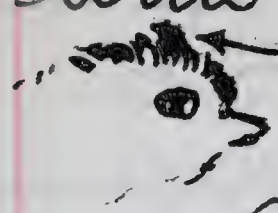
Addenda - (things I forgot to mention in this sequence):

(1) Young quail may not be as easily killed by heat as by cold, judging from today's experience, wherein they were running back and forth in the sun, by the fence, from 8:30 a.m. until 4:30 p.m., however one of them I found wedged in between two pieces of screen and very weak, so that when I released him he fell over on his side and lay there, gasping feebly. I am inclined to think that this weakness would have been much less, had he been protected from the sun. There was, also, the one which died when wedged in between fence and newspaper, as mentioned previously.

(2) There is a faint suggestion of a top knot on the heads even of these

Lophortyx c. californica 283

little quail in their juv plumage.



Their irides are a light brown rather than a dark brown as in the adults also.

(3). I forgot to mention the extreme tenacity with which the parents held to the dense cover right at my feet during the time that I was catching the baby quail. The cover was dense enough to completely conceal the old quail, and since they still had a few of the (uncaught) babies by them they were extremely loth to leave. I could walk within 2½ feet of them without knowing they were there, and would only become aggrieved of their whereabouts when they would burst out of the cover with a whirr of wings and sail off to alight 30 feet away and pit pat frantically. No wonder I couldn't locate any of them quail up at the pasture (map I) recently!

(4). I mentioned on p 273 flushing a pair out of the exp. feed patch, which seemed to have young. Well, they do have young. Ethel came upon them, with about 12 young right out in the main path which leads to the P.D. about 4:30 P.M. The babies dashed out straight while the old ones flew. About 15 feet from where they were seen is a drinking fountain.

(5). Yesterday I saw a ♀ quail by the edge of the ~~Sa~~ reeds and "bunch grass", down by the boat house. The manner in which she just sitted before flying away made me think that she had young. This was confirmed to day by the following: E, while shooting jays, saw a ♂ quail at this point and shot it. (for stomach content exam.) When she went to pick it up she found a baby quail beside it (this was wounded; saved also for stomach cont. exam). This was at about 4:15 P.M. At about 5:30 P.M. I heard a ♀ quail calling cu ca cow in that

baby quail Lophortyx

section. The feminine tones of the voice were unmistakable. This calling continued at short intervals and with a certain insistance until nearly dark. I feel sure that it was the ♀ calling for her lost mate (C'est triste, hozanner!)

July 6. More rotten luck. The inexpressibly stupid ♂ kept running up and down in front of the 21" fence, which meant that the equally stupid ♀ ran up and down opposite him on the other side. In the course of her running she managed to trample and kill ~~four~~ three out of the thirteen babies that followed close at her heels. Probably these three were weak already from lack of attention and from being constantly on the go. This makes five dead out of the 15, for the one which I mentioned yesterday as being exhausted was dead too. I gathered the 10 survivors up, warmed them in the sun and Ethel fed each one 4-7 swallows of milk. Some of them were pretty feeble

dead baby prairie. (a)

before this treatment, but after it they all munched and were very active. E. said that whereas some of them swallowed as soon as the pills were dipped into the milk (they being held in one hand), others did not start swallowing until the pills had been pushed way down into the milk so that they had to shake their heads to rid themselves of it. Even these latter swallowed freely thereafter, however once the swallowing reflexes had been started in this way by getting the milk into their mouths.

When put down on the G. D. once more they all ran peeping to their parents, who were calling them. I haven't seen the Bpr. yet today.

11:25 Rpr. with chicks at the drinking fountain. Two chicks seen to drink before the family moved off into the grass again.

Baby chick st. (b). One of the baby chick stomachs I examined. It contained: about (1) 20 tiny pieces of grit (size ranging

177.9

from about ½ mm. to 1 mm.). The larger pieces were of some dark stone, but the smallest were transparent quartz.

(2) A small seed, or fruit about 1 mm. long, still enclosed in some bracts.

(3) Numerous small leaf tips or bracts (showing the mid vein plainly

(4) Great numbers of tiny narrow strips of vegetable matter resembling tiny plant shoots, or something of the sort.

(5) Unidentifyable tiny vegetable fragments.

It will be noticed that no insect remains of any sort were present, unlike Stoddard's baby Colinus stomachs.

of ♂ quail

The ♂ quail shot yesterday weighed 177.9 – a considerable drop from the spring, possibly due to eating less: Its crop and stomach were filled with seeds – the whole was left in the body to be examined later, however preserved in formalin.

1 P.M. (Cal). R. family heard mourning

a part with our clover, which waved slightly as they moved. The cool green shelter of this clover, as contrasted with the dry brown grass elsewhere, seems to be a favorite place of theirs.

July 8, 1932 11 A.M. Scared a pair with about 7 young just by the swimming pool. The young were old enough to fly, which they did following the adults who (I think) merely ran to cover. This is, perhaps, the swimming pool-orchard pair mentioned in preceding pages.

4:45 P.M. R ♂ seen by E. to approach the water fountain, accompanied by 6 of the young. A moment later R ♀ was seen following him accompanied by 4 more. This means that all ten are safe. Most or all of them drank; one youngster took 5 sips, another 2. The parent took 17 sips. This was the hottest day we have had so far (while I was here, at least; see weather notes), so that her thirst was not surprising. The thermo-

meter must have registered 95°F or more where she was. While at the water the parents took mouthfuls of the adjacent green grass and hur clover. The young were very active, hopping running and jumping here and there in their feeding activities. Some jumped several inches, at least 3 or 4, & then sprang up into the air, seemingly as though just in "play", for they seemed not to have any definite objective. Sometimes one would jump up onto a clod two or more inches high. After a few minutes they wandered slowly off, that is, the adults wandered slowly; the chicks gyrated about as usual. They all went into some thick cover by a hawthorn bush, just n. of the water, and remained there ~~for~~ ten minutes or more. This seems to be one of their favorite loafing places, another being the sour clover patch on the s. side.

5:20 P.M. The BB seen on the sandbar, panting. It is still

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very hot.

July 9

5:40 A.M. Bpr. comes to drink. R chicks and ♀(?) heard close by.

8:15 Bpr. seen for a moment over at the e. side of the Q.D. This would be the B♀'s feeding time, if she is sitting.

The R pr. and young are feeding and loafing at their favorite spot by the Baccharis bush.

8:45 The R. family went to water. Today is windy but not at all hot, yet the ♀ took 17 sips again; the others drank as usual.

9:15 R♂, making a ~~clucking (sss-sss)~~ pit pit noise flew noisily out of the grass to the branch of a tree, where he continued to pit, in plain sight. When he rose from the grass he fluttered against the ceiling wire as though frightened. Such demonstrations have been before from the Q.D. birds, but cant explain them. Perhaps a mouse or similar thing (?) frightens them.

The wind has increased in

moderate till it amounts a roar at times. Seemingly, this noise of the wind makes it difficult for the birds to keep in touch with each other by means of the customary low calls. At any rate, I have heard more calling during the last hour than I have for days previously. The cu ca caws inside the Q.D. seem to be made by both R♂ and R♀ and I also hear some from outside.

3;30 P.M. Cold and somewhat windy. For some time I have been hearing loud "lost" calls from some baby chicks near the south fence of the Q.D. These calls seemed to stimulate the R♂s, for they frequently answered with their cu ca caws. The cu ca cow call given by a quail when calling their young is not quite the same as the cu ca cow of the mating season. It is lower (in ~~tone~~ volume of sound), usually given in a slightly more hurried way than, and frequently has the initial

syllable left off, thus cá cow, cá cow, the accent in that case being as illustrated. I venture to predict that, following the recent period of almost complete silence which has held during the egg stage in the breeding cycle, we shall witness a gradual increase in noise on the part of the birds, at first low and restrained, during the period while the young are small, but growing gradually louder as the young grow up, learn to call themselves, and band together in flocks. Then, during winter, the calls will cease again and not commence until the mating season arrives anew.

This confirmed (Nov 18)

To return to the "lost" calls on the S. side of the fence: they turned out to be five (or more) baby quail on the outside of the P.D. Undoubtedly they were part of the family observed the other day [12 on map I]. Perhaps they had become

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separated from their parents — at least I could not detect their parents in the vicinity, except for a single retreating mistle which first approached — at any rate, they were attracted by the calls of the RO x RO, who in turn had been kept in a state of uneasiness (calling as a cow) by them.

These youngsters were difficult to catch in the underguards, for they crouched down under limbs, pieces of bark, etc, and ran rapidly away to repeat the process, when touched. They were slightly further advanced than the Q.-D. birds, with their tiny flight feathers partly burst from the quills (see specimen saved).

Data on these 5 is as follows

Wt.	Remarks
17.4 ~~25.4~~	killed + put in formalin. Stomach and crop packed with grass tips and seeds (other), Contents left in body for future analysis
12.2 ~~20.2~~	chirtered "Mamlketu's sister"
12.8 ~~20.8~~	red band
13.0 ~~21.0~~	white band
16.9 ~~24.9~~	chirtered "Mamlketu."

the four were put into a box with some cotton, inclosed within a larger box lined with a blanket and left over night inside the (closed) car. Although it was a much colder night than usual (I slept with a blanket - a quilt!), they seemed as lively as usual in the morning

July 10 - 7 A.M. Temperature 54°F after a very cold summer night (see above). I have not heard the Q.Q. Baby quail yet this morning; also, the four which were in the box over night, when brought out into the early morning sunlight, merely huddled together in one corner of the box without making a sound, and shivered, so that they had to be warmed. From this I gather that on cool mornings Baby quail, and their mothers, are rather late risers, the time depending upon the temperature. This is in accord with observations I have made

on the Q.T. babies on a hot morning. The youngsters don't go for their first drink until about 11 A.M., in fact.

I put out the baby quail trap, inside the Q.T., again. During the half hour or so that I was inside the Q.T. I heard not a single note from any quail. Such is their secretiveness.

The adults act much milder, now that they have young than they used to. For example, the Pa was standing in the dry grass near his young (which could be faintly heard but not seen), when suddenly I heard him give the low alarm mo-mo. At the same instant he jerked his head down and dived like a flash under a prostrate mass of hay. All sounds from the young ceased, of course. Looking out to see what could have been the cause for this alarm, I saw E tail going down the main path, 50 ft away. This

is the same path which we have been accustomed to use without causing the quail to take alarm even when they were perched on the horizontal beam, the saw horse, or certain dead branches of brush along the fence, a few weeks earlier. This sort of nervousness must have a strong influence upon the developing impressionable young and must shape their future fear reactions in a decided manner.

Did I mention, earlier, the influence which natural selection must have upon a brood of newly hatched quail? I refer to the fact that any laggard must surely become left behind, and that any weakling must perish of cold or wet, or both, for in such large families no young ~~ter~~ gets any special attention; he must keep up with the rest or die. A point along this same line is that

when a giral child is lost or in trouble and cheeps, the parents call or ca call (or pit pit sometimes) almost immediately, and tend to keep it up as long as the child cries continue, yet they usually do not run very close to where the child is. They come into his general vicinity and call him, and encourage him, but that is all. If he can come, all is well; if he cant he is eventually left to die. The babies it is who must run to the parents, instead of the reverse.

10:55 A.M. RS takes the young to the water — not in a bee line at first, but with much watchful hesitation. The young scrambled about him, not at all partaking of his watchfulness. One was seen to peg repeatedly at the tips of grass shoots.

As soon as they were all inside the trap I went out to

catch them. They had become more wary than on the other occasion. At sound of my approach, or perhaps when the parents left, they one and all dived into the tall grass, instead of merely crouching down in corners and by clods, so that I got not one on the first try.

Waiting for the parents to return, I went at a second time. Again they dived into the grass, but by careful searching I caught 5. They crawled run through the grass as I panted it to reach them, which made their capture even more difficult, and they, if not caught, would crouch down again and remain motionless unless almost touched again. The parents, after flaunting away at my approach, made no noise and stayed out of sight, strangely enough.

By catching a few, and then waiting for the parents to return and delay the remaining

young into mid again. I finally got all of them. As before, the ♂ was the more solicitous, or at least more bold. He returned first, always, clucked (mo-mo) more, and remained longest. One, as on the previous occasion, he waited until almost a yard or two before flushing. The youngsters which were caught I left near the trap in a can 8 3/4" deep. When they heard their parents call they would jump up the sides of the box, and if I had not closed the lid, some of them would have got out. The 4 "orphan" chicks also tried to get out when they heard the Rpr-calling.

Quail chicks can raise and lower their topknots, even as the adults, although the necessity is not so evident, thus, when I held a chick in her hand and it was more or less relaxed the topknot was nearly straight up. But each time she brought a

fingers up within an inch or two of its face the tophat would be lapped back almost flat against the chief's head.

I handed and weighed the Q.I. babies, also the "amphans". The Q.I. babies I handed with cut-down celluloid bands, each bearing ~~as many~~ notches ~~as~~ corresponding to its number, thus:

	No.	Weight	Band
Q.I. bands	1	7.6	red
	2	9.1	"
	3	6.8	"
	4	9.8	"
	5	8.3	"
	6	9.3	"
	7	8.8	"
	8	8.3	"
	9	9.9	"
	10	6.7	"
3 of the amphans.	~~10~~	10.6	white
		9.7	yellow

weighed at 1:30 p.m.

The above lot I alternated again in the Q.I., whereby were taken

change of by the Rpr. The two amphans put with them just confirm a notion that they would be adopted. Broods contain young of two different ages as ~~are~~ reported by some observers, I suspect to be the result of an adoption.

The remaining two amphans are are keeping, & that taking change. They are as follows:

Name	Wt.	Band	
"Mambatu"	21.2	none	weighed at 1:30 P.M.
"Mambatu's sister"	18.4	red	

It will be seen that the Q.D. birds have gained little or none, while the amphans have actually lost. This latter circumstance is due, probably, to the fact that the amphans had their crops stuffed full on the evening before when they were weighed, but had had little chance to eat prior to today's weighing.

A few hours later — both of the young amphan quail which we were planning to raise by hand (mambatu + mi sister)

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died on their way home in the car just now. They were wrapped in cotton (the cotton being at one corner of the box), and the box in which the cotton was placed was lined with dry grass to a depth of an inch. In addition to this, the box was wrapped in a blanket and placed inside a carton. The two quail were at opposite corners of the box when discovered; one was out in the dry grass to one side, and the other was still in the cotton, in a comatose state. Since four baby quail (these two + two more) were successfully kept all night in this same box with all the wrappings, including carton, just the same, yesterday, it seems likely that the two birds died tonight because they got separated from each other and became chilled. This is another indication of the susceptibility of young quail to cold.

July 18, 1932. Asp. Cr. Ranch. As we drove

down the road from the swimming pool toward the boat house a covey of quail flushed just beside the car. There were about 13 young ones, 3/4 grown. They could fly well and rapidly, and were in the immature plumage; in fact, they were about the size of some of the smaller young birds seen a few weeks (2:) ago down at Rachin's locality in San Diego. True to style, the ad. ♂ did not fly but ran along the road for thirty feet or more, in front of the car, before deciding who cover. Don't know whether the ad. ♀ flew or not.

Mr Lellan says that yesterday when he was riding over the ranch he saw many family groups of young.

July 19 - Heard a quail calling cu ca coo several times in vicinity of the Q.S. The cu ca coos will probably increase as time goes on. The dew this morning is very heavy (see undercuathes note);

heavy enough, I should think, to wet young quail pretty thoroughly, if they moved around in it. Perhaps they wait until it dries before moving around, however — unless the flock happens to be scattered by some enemy.

10 A.M. ♂ B♂1 is on central duty on the saw house; has been there for nearly five minutes. Once I saw a ♀, probably his mate, come out of the grass and walk past him, rapidly, disappearing into the grass again. She moved so fast that I believe she could not have had any young with her.

About an hour ago I heard some young quail calling, also the answering cluck of the ♂. However they were evidently not moving around much as yet — the grass was probably somewhat damp.

10:20 A.M. Have been hearing the young, and ad., more and more frequently. Just

now the ♂ appeared, from the n., near the Baccharis bush, and made straight for the drinking fountain, followed by his children. He took several sips while about 6 of the young crowded about him and drank also; the rest of them were scattered about in the grass, feeding. Presently the ♂ turned and walked back toward the grass. He clucked several times but only a few of the chicks followed him, the rest being scattered about in all directions, clambering about in the tall grass, feeding. It is evident that they are becoming more self willed and independent.

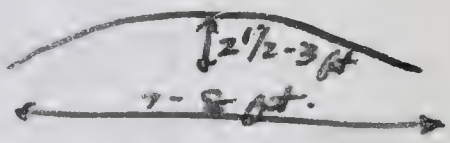
I approached so close to the window that the ♂ saw me. He clucked more emphatically and retreated somewhat panting into the grass, but still the chicks paid little heed. A few more came to him, and one, when he clucked a little more insistently, giving the danger call in fact (mo-mo-mo) one of

the chicks jumped away from him and into a dense clump of weeds — but it reappeared a moment later and began to feed again. After several minutes they all moved in the general direction of the ♂, until the last had left the water fountain. They were now scattered about in the grass, still feeding, some as much as 15-20 feet from the parent. Frequently one of the chicks, evidently lost, would set up an insistant, plaintive, peeping, which would be answered immediately by the ♂.

During all this time I glimpsed the ♀ only once, and she did not go near the fountain. She had no young with her, either — another indication that the ♂ is more solicitous.

The baby chicks were even more active than the last time, as well as being more independant. They roamed run about here and there, hop into the air, even when there was no obstacle to hurdle,

and even spring into the air and flutter seven or eight feet before coming to earth again — their flight above ground not exceeding three feet. :



I counted only 11 of the birds, but there may have been 12. At any rate at least one of the two amphars was adopted.

11:18 - RO daring sentry duty over main gate; young in tall clover below. When I came in sight he gave a single emphatic danger cluck (or mo), and froze at his post. After I had disappeared he relaxed, still remaining at his post, but giving at intervals his regular, soft "flocking" cluck.

11:56 Some, at least, of the R balucs at the drinking fountain again; RO in grass close by, clucking to them; only his head and neck, pointing straight up, and fully extended is visible ; this is a characteristic position with him when in company with the young.

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July 20

10:A.M. R♂ took young to drink, the ♀ remaining in the back ground and not coming to water, as before. The young jump into the air and fly, as before.

Of the 2 "orphan" chicks at least one is still with the family, it being the white (?) handed one.

One of the baby quail (red band) took 10 sips.

2:40 (absent since 10 A.M.). The R♂ again led his chicks to water. The way he did it was to approach to within 7 ft of the water, and then mount upon a short (18") stake there from which vantage post he did sentinel duty, chirping in low tones the while. When he mounted the stake the chicks, which had been gathered near him, kept straight on toward the water. - whose location they had evidently learned. While they drank and then scattered out in the tall grass and weeds roundabout,

the ♂ continued his water; after they had scattered out into the grass, he suddenly jumped down and went to the water too, the chicks all rushing back toward it again, but not drinking this time merely feeding in its vicinity. After the ♂ had drunk 3 sips he returned to his stake, remained there several minutes, until all the chicks had crossed over the open place to his vicinity (from vicinity of drinking fountain), and then jumping down, he disappeared with them into the grass. As usual I did not see the ♀.

The ♂ panted while sitting on the stake (89° F in the shade; over a hundred in the sun, cloudless), as did also the thrashers nearby.

11 Young were again seen, of which the white orphan was one. The yellow orphan has not yet been seen, and I think he is the missing one. (Later - Correct)

I had one of my two young sparrow hawks inside the cabin today

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and on two occasions, when it was visible through the screen of the window, the ♂ and ♀ set up an excited pit pit pit.

The flock of very large young seen at junction of rd. to barn and rd. to boat-house seems to be spending its time around the garden, where blackberries are in profusion, and around the rosebushes just across the road, on the deer paddock fence. There are about 13 of them.

July 21 Went over the locality shown on Map. I, looking for young quail, 8:15-10 A.M. The young were out in the grass, feeding, with their parents, but of course they made for cover whenever they saw me in time. Undoubtedly I overlooked many by their getting to cover and then keeping quiet when I came around, beating the bushes. One covey escaped across the road, and I just got a momentary glimpse of a few of them; in another case the ♂ flushed from the grass near a wild rose bush when I was 15 ft away, but I could

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find no young for 10 minutes. At the end of that time, happening still to be in the vicinity, I heard several small young peeping, their cries being answered by the ♂ who was in a dense bush, calling intermittently. Even then, I actually found none of them, for they crouched and froze at my approach. The young that I did see today ranged from small downy things just able to fly (like the Q. D. young) to half grown birds in immature plumage that flushed instead of hiding in the cover. Flocks [9] and [8] shown on map I side by side, flushed together out of one bush, accompanied by their (4) parents; one flock was half grown, the other much smaller. This joining of the two groups shows the beginning of the flocking stage, I suspect. That is, if they remain together.

Notes taken by Ethel:

8:15 A. M. B ♂ on sawhorse; R ♂ with young, near water; R ♀ some distance behind the R ♂.

Presently the R♂, with young, went to the fountain and drank, and while they were there the B♀ joined them and drank also, without showing any particular reactions to the young, or the young, or ♂, to ♀. After a few sips, the R♂, with the young went back to the R♀ again – who, as usual, did not go to drink. The B♀, left about this time, and the B♂, who had been on the sawhorse all this time, jumped down also. It is clear that the Bpr. have no young as yet.

9:15 R young at water again; parents invisible in grass and clover near by.

10 A.M. R♂ and young feed in vicinity of water, in an open space for 5-10 minutes. They went to water again (incl. the ad♂, E. thinks). B pr. go to water. A few minutes ~~the~~ later they were both seen again as they ran past under the windows

3.P.M. R♂ with young ~~went~~ went to water again; this time the R♀

followed after, and drank, too. The R♂ presently went up upon the short stake near by (mentioned before), while from out of the grass came the B pr., which Cattes drank beside the R♂. Presently all three went back into the grass, while the R♂ stayed on guard on the stake and the young "frolicked" about. One of the thrashers was hopping about among the widely scattered young, paying no particular attention to them, when all at once the R♂, 6 feet away, jumped down from his stake and dashed at the thrasher. The latter ran this way and that, dodging, but the R♂ kept right after him until he finally ran straight away 15 ft. and disappeared into the grass. Buster tells me that the ♂ of the pr. marked [10/4 in red] on map II used to ~~chase~~ run at his dog "Zip" whenever they (Buster & the

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over the trail there. Zip, he said, always ran away. This happened not only this year, when Binty first found young there (and tolet me of them), but also last year.

I have seen both old and young of the Pr. eat sour clover leaves (inside Q.I.) too many times to enumerate.

I forgot to mention that at 7:40 this A.M. I heard repeated cu ca coos from direction of the coney of large young which lives below (and somewhat s.e. of) the swimming pool.

July 22 - 7 A.M. Cp. C.R. The swimming pool bird cu ca cooed again several times, and was answered by one of my Q.I. birds, which also cu ca cooed; the Q.I. bird did this yesterday, too, although I forgot to mention it.

Strangely enough, at this same time I heard the quail call twice from the barley field downhill from the Q.I. This reminds me that a week ago, when at the

M.V.Z. I was greatly surprised to hear repeated quans coming from the campus agle just east of the power plant. This was just where I had used to hear quans about a month ago during the quaring season at Berkeley. Asked Lundale about this and he said he thought that this land had only just recommenced to call in this way — in fact, he had not heard it before. I said then, that at that rate I ought to be hearing quans up at the Alg. R. the following week (the season being later there), and this is indeed what has just happened, although I don't know whether it is a co-incidence or not.

Went over territory shown in Map I again today, 8:45-10:15 A.M. As an indication of how hard it is to find broods that are still too young to flush readily, I only found one of the broods I saw yesterday, and found only one new one. In some

cases, where the quail were large, the broods may have moved down toward the road, or across it, but in the case of the small young I think it is simply that they hid too well.

3:30 (ab). Q.9. young came to drink, RO♂ did sentry duty, meanwhile, on the horizontal beam.

Ethel saw another covey of young quail by the quarry (see map II), also another covey further up the road, in territory not included by my survey. This first covey might well have got to the place it was from vicinity of goat pen and adjacent thick tangle, where nesting birds had already been recorded by me.

Today I put a three-compartment tray containing ① oyster shell, ② fine grit, ③ charcoal into the Q.9.

July 23 - ab. 8 A.M. - RO♂ on guard on saw-horse, with the young feeding below him. This is the first time I have seen or heard him or them so far this morning.

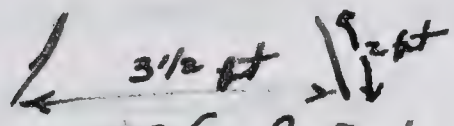
8:30 A.M. Young and RO♂ at N. side of

drinking fountain, by Buchanan Arch.
~~Few as~~ Some of the young went to drink by
ones and twos, and I took photos. About
ten minutes later the ♂, accompanied
by 3 or 4 more young, came to water —
more photos. The ♀ remained behind,
in the grass, as usual. Near her was
the B yr., just standing in the grass.
About 8:45 The R♀ and B♀ made
a move to go to water, but they caught
the movement of my blue shirt,
two feet back from a 10" x 2" aperture
in the window, although the room
was darkened with sweaters and a
black cloth at the other windows,
and instead of going to water they
ran through the tall grass past it,
and disappeared.

Since about July 18, or a few days
before, I have noticed, occasionally, that
the young G.J. birds made the same
type of plit plit alarm call as the
parents. It is less loud, and on a higher,
somewhat squeaky key, but it is
recognizable as the same vocal process

10:45 Got some more pictures, of ♂ on sentinel duty, and young at drinking fountain again. The ♀ however, unlike the ♂, was afraid of the shutters click and the tearing of the tabs, and ran about uneasily, out of range.

July At 10:45 I set up the quail trap around the water fountain. It was about 3 ft high this time, on account of the ability of the young to fly; also, it was smaller:



The birds, however, were unable to enter it on account of its steepness. That is, they were physically quite able, but instead of trying it, they merely ran up and down on the ground opposite the crates, looking in at it, like domestic fowl buying to get through a fence. This continued the rest of the day.

In the evening some outside quail went to roost in a mulland tree just across the fence from the exp. feed patch, below

the swimming pool. This is a covey of old and young; perhaps the ones marked [12] on Map I.

July 24 - More dumbness on the part of the Q.I. quail. The night before I lengthened the sides of the trap, making them more slanting also. At 9 A.M. I saw the P.O. and young just leaving the trap. Some of the young were jumping out of it. I am not sure that all had gone in, in fact I am pretty sure that some had not. Seeing that the young could jump and fly out, I made a hinged door at the top of the inverted funnel of the trap,

operated by a string from inside the cabin. The quail had not come to water since 10:40 the day before (on account of the trap), yet this did not seem to make them come much earlier than usual today (they came at 9 A.M. July 23 the first time). I heard and saw them moving about a long time before they went to water. Temperature, I think, is

the governing factor.

At 11 A.M. they returned, and I trapped two, the rest failing to enter. At about 3 P.M. they came to water again. Six entered after some hesitation (they had to jump down about 1 ft and land in the water), and two of them got out again before I pulled the string. This made, of the remainder outside, 2 that had got a drink, three that may or may not have got a drink at 9 A.M. (if not, then they have had none since 10:40 of the day before. The R.S. was very wary and nervous; he hesitated on the brink of the trap many times, but would not go in. He and the other 3 adults may have got a drink at 9 A.M., but knowing their timidity, I doubt it; if ~~but so so~~ Doubtfully, then they haven't drunk since 10:40 A.M. of the previous day. No more attempts to drink were made by any of the Q.S. quail the rest of the day.

The outside coney went to roost just ~~south~~ ~~east~~ of the exp. f. patch tonight.

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July 25. 10 A.M. Saw the R♂. for a moment, at the sawhouse, but as yet no quail have come to drink, although they have not had water since at least 9 A.M. yesterday, and the adults at least, much longer. Last night was much colder than usual, with the mornings also cool, which doubtless explains their delay. The thrasher was sent to enter the fountain trap, drink, and leave freely, indicating more adaptability, or less wariness, than the quail. Quail are somewhat circumscribed in action by their terrestrial tendencies. A thrasher, or a toy quail, never runs up and down blindly at the base of the trap trying to find a (non-existent) opening to pass through into the water, it would fly up to the edge of the trap (or top there) and thence down inside, something the earth bound quail take a long time to do! Quail are not intelligent, merely timid and nervous.

10:06 - Cuca comes and heard from vicinity of more brushes, garden, etc where the covey of very large young is.

10:30 - R♂, with 3 young, went to edge of fountain, but had nervously retreated, with the young following, before any had a chance to drink.

12:45 R♂ was up in bush at edge of fence, doing sentry duty for 1/2 - 3/4 hr. At length he came down, and all four ad. quail, plus 3 young went to the water. Thrasher's the 3 young. It is all these are left outside. Two must have died of thirst. One of yesterday's lunch is in a state of collapse also, probably from thirst.

Wts as follows:

Old no	New no.	Wt. (yesterdays lunch)
7	A409291 ♀	30.7
white band	592714 ♀	39.3
1	592715	33.8
6	592716	35.7
8	592717	33.4
3	592718	31.8
4	592719 ♂	42.1 } caught today
9	592720 ♂	45.7
2	592721	38.2

wt of bag is : 14.8 subtract from these

It will be seen that the birds kept over night ~~last~~ in cage. Several were weak, and had to be given water, and especially milk. They would take this from the edge of a tea spoon, even though they were too weak to hold up ~~their~~ head.

Released at 3 P.M., all 9. One flew about 3 ft into brush at e. side of Q.D.; others wandered about near the drinking fountain where they had been released.

July 31. Two mi. north of Mono, Oregon, on the U.S. Highway No. 97. Saw a covey of seven or eight young, about 3/4 grown, with one or both parents. They flew up from the road and vanished into the thick cover along the creek bottom as we went by. The country is rolling, and sagebrush hill country, with luxuriant vegetation, and small farms in the valleys. The quail were in the valley, near to a farm-house.

Same day. Washington, just across the Columbia River, at the Maryhill Ferry. A ♂ and ♀ flushed from the weed fringed road as we drove past. Country similar to that described for Mono. These quail must be from

Lophortyx c. californica

introduced stock.

Aug. 2, 1932. Between Omak and Okanville, Washington, (7-8 A.M.) this is only about 5-6 miles from the southern boundary of British Columbia. During the time that we drove along this highway we saw a brood of about 12 three-fourths grown young with one or both parents, and, at various points, several adults. The road paralleled a river bottom, with luxuriant vegetation fringing it; the river bottom was dotted with small farms and orchards, the hills were dry and sparsely clad with vegetation, as at Okanville and Marblehill Ferry (see antea p. 322).

Bobwhite heard → About 3 mi. s. of Okanville (7-8 A.M.) we passed a bobwhite which was perched on a fence post at the edge an orchard (same section described above). Although only about 30 ft from the road, he did not show alarm as we went by, or even when we backed up and stopped to observe him better, but continued to whistle his bob-white.

Of these two species of quail

Loyshantyx c. California

are within six miles of the boundary of British Columbia they must, in the absence of barriers range into that province as well. P. P. McCabe says that he thinks there have been numerous liberations of quail in southern B. C., also, not only at Vancouver, but on the mainland. He says that Munro will know all about this (See references P. P. genome.)

August 18, 1932. Alpine Creek Ranch (Ralph Estate), San Mateo Co., Calif. Have been away for about three weeks. Of course no rain has fallen, and things are drier than ever, although not so hot as it has been. Inside the P. P. the Anthemis cotula, sun flowers, bristly oxtongue (Picris), thistles, and perhaps a few others, are green, but the rest is dry. To my horror I found last night that the automatic drinking fountain had gone dry. The mud in the bottom of the dish was hard and dry as brick, and all the dirt around the edge of the dish, outside, had been

(no; see p. 329 "→" in middle of page).

scratched away by the thirsty birds. In one small area, ca. 3 inches long, at the edge of the dish, seven or eight tiny frogs huddled together on a spot of moist earth; even there there was no standing water, or even mud. The fountain must have been practically dry for at least twenty four hours, and I believe much more than that, although it is impossible to say exactly how long. I turned the water on, although believing the birds dead, and was flabbergasted to hear the usual clucking of the ♂ and peeping of the young at 9 A.M. this morning. There they were, quite as usual, except that the young were only 6 in number and were now half grown and in their gray immature (?) plumage. The fact that there were only six is I think due to the weakened condition of some of the brood at the time I last handed them (see p. 322), and not because of any recent mortality due to water shortage. At the time I handed them I estimated that only about six would

summer. The R♂ and young ran to water with more eagerness and less wary hesitation than usual, to be sure, but the R♂ only drank about 4 sips, and the young only about 7 or 8, and none of them seemed to have been affected by the previous water shortage. They moved off into the tall grass, cutting off leaves of sour clover, the young jumping about, and flying, just as before. A moment later the Bob (unaccompanied by any young!) and the R♀ also ran up to the water, eagerly, but with several detours and much hesitation, and they drank a few sips each, also, and moved off into the grass.

Mr. August Bade of the State Game Farm tells me that he thinks that young quail do not require water until they are at least 6 or seven days old, possibly more.

The above, together with earlier experiences, indicate that California quail will drink water during the summer months, quite ~~frequently~~ regularly

when they can get it, yet they do not die (immediately at least) if deprived of it for several days. I have not yet seen the thrashers drink the water current dry; perhaps they have been less alert to endure the drought than the quail.

Once, just as the youngsters were leaving the drinking fountain, one and then another and another sprang into the air and flew several yards giving the plit plit call quite loudly. The R.C., and the other ads. were out in the open at the time, and at the sound they looked about warily but did not run to cover. Probably the young give this plit plit call quite frequently without there being any danger, purely from "excess of animal spirits", and the ads. do not take them seriously. The call, as given by the young, is apparently indistinguishable from the adults' only slightly less loud and lacking a trifle shriller.

12:58 p.m. Apparently life inside the R.C. continues as before. Hear

Zonotrichia c. californica

the young, at intervals, as they give their peep-peep note while feeding in the tall grass, also the cluck of response given by the R♂. The peep is louder and less shrill than formerly however. Just as before, the R♂ mounted upon his look out stake while the youngsters fed, and as before the R♀ lagged behind.

2:35 - Young feeding in and near same clover patch; R♂ on guard at s. side of Q.D., first in brush a few feet above ground, and then on the ground. He clucks at intervals. There is a ♂ with the young, probably the R♀; she keeps in the tall clover.

The young feed just as do the parents; they jump up into the air, with folded wings, after leaves etc above their heads, and they eat green leaves in large numbers. One of the youngsters saw me behind the screen and stopped and stared at me, head turned sidewise, body drawn up to full height, with neck outstretched. When I moved my hands about it stared for a moment longer, then gave a low plit plit and darted off to the edge

the tall clover, where, unlike the adults, hammer, it commenced to feed again without further alarm.

2:45 (a.) Young and RO wandered out of the clover, three of the young leading, and went to the drinking fountain. The 3 young ones ~~ran~~ got there first, and drank 14–17 sips each; about the time they turned to leave, the RO and 3 more young arrived and began to drink also. Presently the RO squatted down beside the pool and dust bathed. That is what made the scratched place beside the fountain, instead of its being caused by the birds being thirsty. Presently he got up and one of the young squatted down in the place that he had made and went through exactly the same act. After a while, more young came and wallowed side by side with the dust there and now the two ad ♀s approached, timidly, drank at the fountain, and then they too wallowed in the dust beside the young. Sometimes there were

as many as 4 birds "bathing" in the dirt plus three more standing beside the water fountain, or feeding close by. The ♂♂ stood guard, meanwhile. It was a lively scene.

Presently all wandered off but three youngsters who were dust bathing, and the ♂♂ who still stood on guard. ~~Suddenly~~ He must have given an alarm note too low for me to hear, for suddenly all three youngsters froze. Two were still bathing, but the third stood, statue like, at the edge of the fountain. There was nothing to alarm them that I could see, yet for nearly five minutes the youngsters held themselves immobile, while the ♂♂ did likewise. So perfectly did the young blend with the grayish-brownish earth that I could with difficulty make out anything but their black eyes, even though they were on entirely bare ground. At length the patriarch of these youngsters began to crane, although their fathers

still held himself motionless. Several times one of the bathers gave a tentative scratch in the dirt with his feet, but became motionless again, and one the one which was standing up, fluffed his feathers out and gave them a shake. At length the one standing up began to feed; the bathers a moment later, started to bathe, no doubt relaxing in response to the relaxing of the former. The feeding youngster, however, made a sudden dart for cover at this moment, whereupon the other two rose up and made a dash in the same direction. Now, the ♂ and all the others nearly dashed in the same direction, and all had disappeared.

3:23 ♂ doing sentry duty on the little short stake in the S.F.P.; the young can be heard feeding around and below him.

Just now I heard a curious mewing and much pitpitting from the brush at the side of the main feed patch. The covey previously

recorded as frequenting that section must still be doing so. Looking out to see what gave them a alarm I saw a red tail sailing high up (200') and at least 125 yards s. of them, probably much more — assuredly no where near enough to be able to catch any of them. Such is the timidity of quail — a timidity which, as we have observed, is accentuated during the nesting season. Such, also, is the manner in which the young, under the tutelage of their parents, learn to shun their enemies.

The art of dust bathing I think I have described. It consists of wallowing in the dirt, kicking alternately with one foot or the other while lying over on the opposite side, and then returning to a straight upand down position and with fluffed out, vibrated, feathers, working down into the soft earth scratched up by the feet. The birds continually pick up and swallow grits which they without raising to their feet

have scratched up with their feet.

Here is something which was noted down on scratch paper July 24, but not incorporated here.:

There are three stages in the development of escape reactions in young quail, as follows:

1. Before the young are able to fly, they crouch down, or sometimes run a few feet to cover such as leaves, tufts of grass, clods, etc, before crouching, when danger approaches. This is done, often, in response to the alarm calls of the parents, but sometimes, also, to direct stimulus such as sight of human being.

2. As soon as the young are able to fly, while they are still in the fuffy plumage and are quite small, they fly toward and into the nearest dense cover and remain there, hiding. This is done under same stimuli as preceding reactions.

3. When the young have acquired their gray plumage, and are able to fly strongly, they will no longer remain in dense cover if one beats it,

7- lab circuit

even lightly; instead they flush even more readily than do the parents, and usually fly strongly for a number of feet (30 - 150 ?) until they have found another thicket to hide in.

Later, when they are fully grown, and especially during the winter (?) and spring months, and during the breeding season, they show the characteristic adult tendency to hunk in thick cover even when it is briskly beaten, and refuse to flush.

Aug 22, 1932 - 7:05 P.M. (dusk) The Q.Q. quail are going to roost. This is the first time that I have heard them do so since the hatching of the young. Evidently, from the sounds, the young are now going to roost in the trees, too. There is much flit-pitting in low trees, the branches trembling and sway in many places at once, and there is an intermittent fluttering of wings now here, now there, along the line.

7:12 - all sounds have ceased.

Lophortyx c. californica

Aug 23, 1932 The band of quail which has been mentioned previously as staying around the outside feed patch is still there. Yesterday afternoon I heard them giving low alarm calls in the brush just off the path as I went past. Today at ab. 9 A.M. I heard an explosive, continual pit-pitting from the little brush circle where the sparrowhawks' cage stands. At least two birds were making this noise, and they kept it up for five minutes or more (until interrupted by me); occasionally the sparrow hawks would answer, giving their rasping keeyr-r-r call. Finally I went out there, and a covey of 15 or so birds exploded from the bushes and flew to their regular hangout on the s. side of the feed patch. They must have been staying there, "mobbing" the sparrow hawks, because they wanted to, for they could easily have kept quiet and sneaked off instead of remaining and raising a hullabaloo.

10:50 A.M. Heard the Q.S. birds for